RESOURCE SERIES 3

COLORADO COAL DIRECTORY AND SOURCE BOOK

LOUISE C. DAWSON AND D. KEITH MURRAY
COMPILERS

COLORADO GEOLOGICAL SURVEY
DEPARTMENT OF NATURAL RESOURCES
STATE OF COLORADO
DENVER, COLORADO

1978

PRICE $10.00

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DOI: https://doi.org/10.58783/cgs.rs03.lsbr8058

"The contents herein were developed through the use of funds provided by the U.S. Department of the Interior, Bureau of Mines, and by this notice the Bureau does not agree or disagree with any of the ideas expressed or implied in this publication."

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FOREWORD

This publication has been printed in loose-leaf format to facilitate revision and supplementation as well as day-to-day use.

We would appreciate being informed of any errors and of any new information relating to Colorado coal development. All such corrections and updating will be made available on revised or supplemental pages on a periodic basis, provided that adequate funding is available.

We also must emphasize that all information in this Colorado Coal Directory and Source Book is subject to change at any time. It is designed to be used as a workbook for private and public planners and as an information resource manual for pertinent public concerns. In general, the data and projections presented are to be considered as trend indicators. It is beyond the legislative charge of the Colorado Geological Survey, as a State agency, to make predictions for private industry or to report confidential business matters. However, it is our responsibility to keep track of and inform State residents of matters of State concern.

This directory was produced in part using funds provided by the Bureau of Mines, U.S. Department of the Interior. Its purpose is to provide detailed, up-to-date information regarding the production and shipment of coal from mines operating within the State of Colorado, together with data of interest to the users of Colorado coal and to those involved with the development, and with the effects of such development, of this important resource.

A draft directory was initially compiled by conducting a survey of selected coal publications and records available from private industry, and agencies of the Federal Government and the State of Colorado. The following agencies were contacted or visited:

U.S. Bureau of Mines--Colorado Liaison Office, Intermountain Field Operation Center
U.S. Bureau of Land Management
U.S. Geological Survey
Federal Power Commission
Federal Energy Administration
Colorado Division of Mined Land Reclamation
Colorado Department of Health, Air Pollution Control Commission
Colorado Division of Mines
National Coal Association
Union Pacific Railroad
Denver & Rio Grande Western Railroad
Public Service Company of Colorado
Colorado Ute Electric Association, Inc.
Colorado Springs Department of Public Utilities

The information obtained from these agencies was then collated and reviewed. In general, the bulk of the information pertained to historic production and mine characteristics; relatively little data were available regarding current or planned coal shipments, mine expansion plans, or new (proposed) producers. Consequently, a survey of the operators of currently licensed coal mines and owners of proposed coal mines in Colorado was conducted.

Personnel from each of the coal mines included in this directory, with one exception, were contacted by telephone, letter, or personal visit. (The single exception is the Denton Strip mine in Routt County, closed in 1976; we were unable to locate the owner to determine if the closure was permanent). The survey of mine owners and operators was conducted to corroborate the information already collected, as well as to acquire information regarding coal shipments, contracts and future production plans. Usually two different offices were contacted: 1) the sales department - for current coal analyses and shipments, and for future production and contractual plans; and 2) the engineering department - for basic mine data, such as mining method, coal bed name, etc. However, only one individual (the owner) was generally available at the smaller mines, i.e., mines producing less than 10,000 tons per year. Most of the operators were cooperative. However, all understandably were sensitive about questions regarding two general areas: 1) contractual data, e.g., purchaser and price paid; and 2) reserve data, e.g., remaining recoverable coal. Most of the figures are simply sales estimates, since the companies contacted could not provide exact usage figures without devoting considerable time and effort to such a project. Consequently, while the 1976 Colorado coal production figures are relatively "hard", the contractual and local sales figures are probably "soft"; that is, the actual quantities may vary from the stated quantities by as much as 20 percent, plus or minus. During December 1977, and January and February 1978, the coal operations or owners were again contacted to verify the 1976 information as well as the up-dated 1977 data on each coal mine, and they were informed that the information would be published. During this second survey, the operators of the following mines could not be reached: Tomahawk, Red Canyon, Cedar Canyon, Eastside NuGap #3, Spink Canyon, Peanut, Grizzley Creek, Marr Strip, Peacock, Coal Basin, Blazer, Denton, Ellt's, and Elder. Data on these mines are based on the first survey plus verification from published information gathered by the compilers.

ACKNOWLEDGMENTS

The Colorado Coal Directory and Source Book would not have been possible without the helpful cooperation of a number of coal mine operators and owners, power plant operators, and individuals connected with the coal industry in Colorado. The list of names deserving of recognition is too lengthy to cite here. However, special thanks are due to the following individuals for their assistance: Joseph Blake Smith, U.S. Bureau of Mines' Liaison Officer for Colorado; John S. Corsentino, Kemmerer Coal Company (formerly with the Bureau of Mines Intermountain Field Operation Center, Denver); Andrew Deborski, Assistant Director - Coal, Colorado Division of Mines; Hollis B. Fender, formerly with the Colorado Geological Survey; Janet Schultz, Colorado Geological Survey, Mineral Fuels Section; and Schlaphoff and Associates, computer consultants.

This publication incorporates parts of two research projects funded by the U.S. Bureau of Mines, I.F.O.C., Denver and conducted by David H. Hebb and M. S. Curtin of the Mineral Economics Institute, Colorado School of Mines, Golden. The unpublished reports submitted by Hebb and Curtin to the Bureau of Mines in February and March 1977 consisted of "Colorado Coal: A Production and Shipment Directory," and "A Survey of Coal-Fired Heating Equipment Manufacturers" (the second report is included herein esentially as prepared by Hebb and Curtin).

The compilation, writing, and additional research conducted by personnel of the Colorado Geological Survey in part were funded by U.S. Bureau of Mines Grant No. G0166008.

CONVERSION TABLES

Factors for Conversion of Measurements to Metric Units

All measurements in this report are expressed in English units. Factors used to convert these measurements to the International System of Units are as follows:

If given unit is:		Multiply by:		To obtain:
Acres	x	0.4047	=	Hectares
Acre-feet	x	1,234	=	Cubic meters
Btu	x	0.2520	=	Kilogram-calories
Btu/lb	x	0.5555	=	Kilogram-calories/kilogram
Btu (mean)	x	1,055.87	=	Joule (J)
Btu/lb mass	x	2,236.0	=	Joules per kilogram (J/kg)
Calorie (mean)	x	4.190	=	Joule (J)
Cubic feet	x	0.02823	=	Cubic meters
Feet	x	0.3048	=	Meters
Inches	x	2.540	=	Centimeters
Miles	x	1.609	=	Kilometers
Short tons	x	0.9072	=	Tonnes
Square miles	x	2.590	=	Square kilometers

Fuel Conversion Factors

PRODUCT	APPROXIMATE HEAT VALUE (Btu)
Bituminous coal	12,000-13,000/lb. (or 25 million/ton)
Lignite	6 million/ton
Crude oil	6 million/bbl (or 144,000/gal, or 21,000/lb)
Petroleum products:	
Natural gasoline	4,620,000/bbl (or 132,000/gal, or 22,800/lb)
Liquefied gases	4,011,000/bbl
Gasoline (refined)	5,248,000/bbl
Kerosene	5,670,000/bbl
Distillate (including deisel)	5,825,000/bbl
Residual fuel oil	6,287,000/bbl
Lubricants	6,065,000/bbl
Waxes	5,537,000/bbl
Petroleum coke	6,024,000/bbl
Asphalt and road oil	6,636,000/bbl
Natural gas liquids:	
LP gases	95,500/gal
Ethane	73,390/gal
Natural gas, dry	1,031/cu ft
Nuclear power	10,660/kwh
Hydropower	10,379/kwh

Fuel Conversion Factors

PRODUCT	APPROXIMATE HEAT VALUE EQUIVALENT
1 ton (short, 2000 lbs) of bituminous coal	25 mcf of natural gas 189 gals of gasoline 4.17 bbls of crude oil
1 Mcf of natural gas	0.04 ton of coal (80 lbs) 7.58 gals of gasoline 0.17 bbl of crude oil (7 gals)
1 gal of gasoline (4 qts, or 5.8 lbs)	0.005 ton of coal (10.56 lbs) 0.132 Mcf of natural gas (132 cu ft) 0.022 bbl of oil (0.917 gal)
1 bbl of oil (42 gals, or 285 lbs)	0.24 ton of coal (480 lbs) 6 Mcf of natural gas 45.5 gals of gasoline
1 lb of U308 in concentrate	8.9 tons of coal
(for electric power from LWR reactors)	37.1 bbls of crude oil

British Thermal Unit (Btu)

A Btu is the amount of heat required to raise the temperature of 1 lb of water by 1°F.

Large quantities of energy usually are expressed in large multiples of Btu's--trillions (10^{12}) or quadrillions (10^{15}), often called "The Q." For example, the gross input of energy in the U.S. in 1973 was approximately 76 Q. By the year 2000, annual energy demand in the U.S. is expected to increase to 170 to 215 Q.

Oil shale is believed to represent a potential energy source of 159 million Q; however, only about 300 Q are estimated to be available under current economics and technology. By comparison, the coal resources in the U.S. are estimated to contain 83,000 Q of energy, with some 3,600 Q available for development under conditions prevailing today. U.S. petroleum resources, on the other hand, are estimated to total only 250 Q.

COMMON FUEL	Btu CONTENT
Crude oil (1 bbl).....	5,800,000
Natural gas (1 cu ft).....	1,032
Coal (1 short ton).....	24,000,000 to 28,000,000
Electricity (1 kwh).....	3,412

NEW CLASSIFICATION OF TOTAL MINERAL RESOURCES

(adopted by U.S. Geological Survey and Bureau of Mines)

Key Criteria:

1. Extent of geologic knowledge about the resource.
2. Economic feasibility of recovery of the resources.

Glossary of Resource Terms

Resource — A concentration of naturally occurring solid, liquid, or gaseous materials in or on the earth's crust in such form that economic extraction of a commodity is currently or potentially feasible.

Identified Resources — Specific bodies of mineral-bearing material whose location, quality, and quantity are known from geologic evidence supported by engineering measurements with respect to the demonstrated category.

Reserve — That portion of the identified resource from which a usable mineral and energy commodity can be economically and legally extracted at the time of determination. The term "ore" is used for reserves of some minerals.

The following definitions for measured, indicated, and inferred are applicable to both the "Reserve" and "Identified-Subeconomic" resources components:

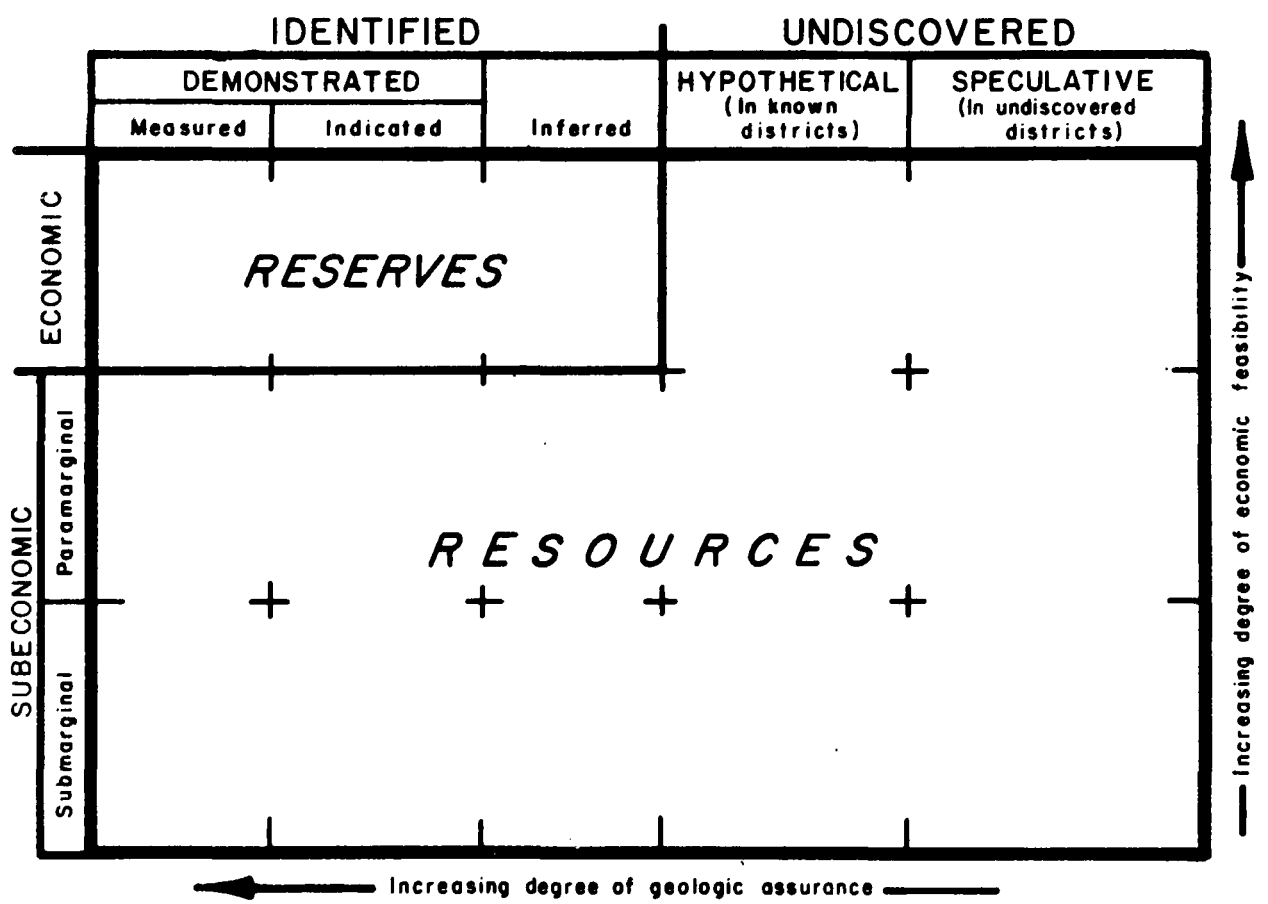
Measured — Material for which estimates of quality and quantity have been computed, within a margin of error of less than 20% from sample analyses and measurement from closely spaced and geologically well-known sample sites.

Indicated — Material for which estimates of quality and quantity have been computed partly from sample analyses and measurements and partly from reasonable geologic projections.

Demonstrated — A collective term for the sum of materials in both measured and indicated resources.

Inferred — Material in unexplored extensions of "Demonstrated" resources for which estimate of the quality and size are based on geologic evidence and projection.

(Source: Department of the Interior News Release dated April 15, 1974, "New mineral resource terminology adopted.")



PART I. COLORADO COAL STATISTICS

COLORADO COAL FROM THE NATIONAL PERSPECTIVE

As U.S. energy demand is increasing, imports of crude oil and petroleum products, which currently comprise 40-50 percent of our domestic demand, are up from 37 percent of our total consumption in 1975 and 40-plus percent in 1977. In order to keep pace with this increasing demand, by 1985 U.S. coal production must be doubled from our current annual production of some 660 million tons if our country's energy requirements are to be adequately met. Of the 1.2 billion tons some experts believe will be required by 1985, over 250 million tons, or 20 percent, must come from the Western States; this figure is about equal to the annual production of Kentucky and West Virginia combined. Kentucky, West Virginia, and Pennsylvania still lead the Nation in annual production with 140, 106, and 83.5 million tons, respectively, being produced in 1976 (Lowrie, 1977, p. 117, 118). These states historically have produced large quantities of coal and will continue to be the Nation's major suppliers of coal in the foreseeable future (Schmidt, 1977, p. 8). Although the West has not been a large contributor to the Nation's coal production in the past, the major increases in U.S. coal production in the future will occur in the Rocky Mountain States, where immense resources are located.

Significant coal production commenced in the western U.S. in the late 1960's with the increased use by electric utilities and industry, new air quality regulations inducing a shift from high- to low-sulphur coals, and the fact that much of the coal in the West can be surface mined; nearly 93 percent of the surface-mineable low-sulphur coal resources of the U.S. are found in the Rocky Mountain region (Lowrie, 1977, p. 114-115). In 1976, the Rocky Mountain States alone produced total of approximately 97.5 million tons of coal (Glover, 1976). Although Colorado currently is one of the smaller producers of Rocky Mountain coal, and produces only 1.5 percent of total U.S. production, its annual production has increased almost every year since 1971 (Colorado Division of Mines, 1978, p. 28):

1971	5.31 million	short tons (ST)
1972	5.53 million	ST (4% increase)
1973	6.23 million	ST (13% increase)
1974	6.96 million	ST (12% increase)
1975	8.27 million	ST (19% increase)
1976	9.46 million	ST (14% increase)
1977	11.97 million	ST (27% increase)

Since 1880, Colorado mines have produced over 618 million tons of coal (Fig. 1), approximately equal to the annual production of the United States. Colorado's record production of 12.7 million tons occurred in 1918; production then declined markedly during the Depression years. A slight increase in the State's coal production occurred during the period 1941-1945 (World War II). Colorado coal output declined drastically from 1945 to 1963, reaching a low of 2.9 million tons in 1954, the lowest since 1889. Much of this decrease was due to the increased use of natural gas (the price of which was fixed by action of the Federal Power Commission in the early 1950's) and to the replacement of coal-burning trains with diesel-powered locomotives. Coal production in Colorado fluctuated between approximately three and six million tons per year until 1973, when the present rise in annual production began.

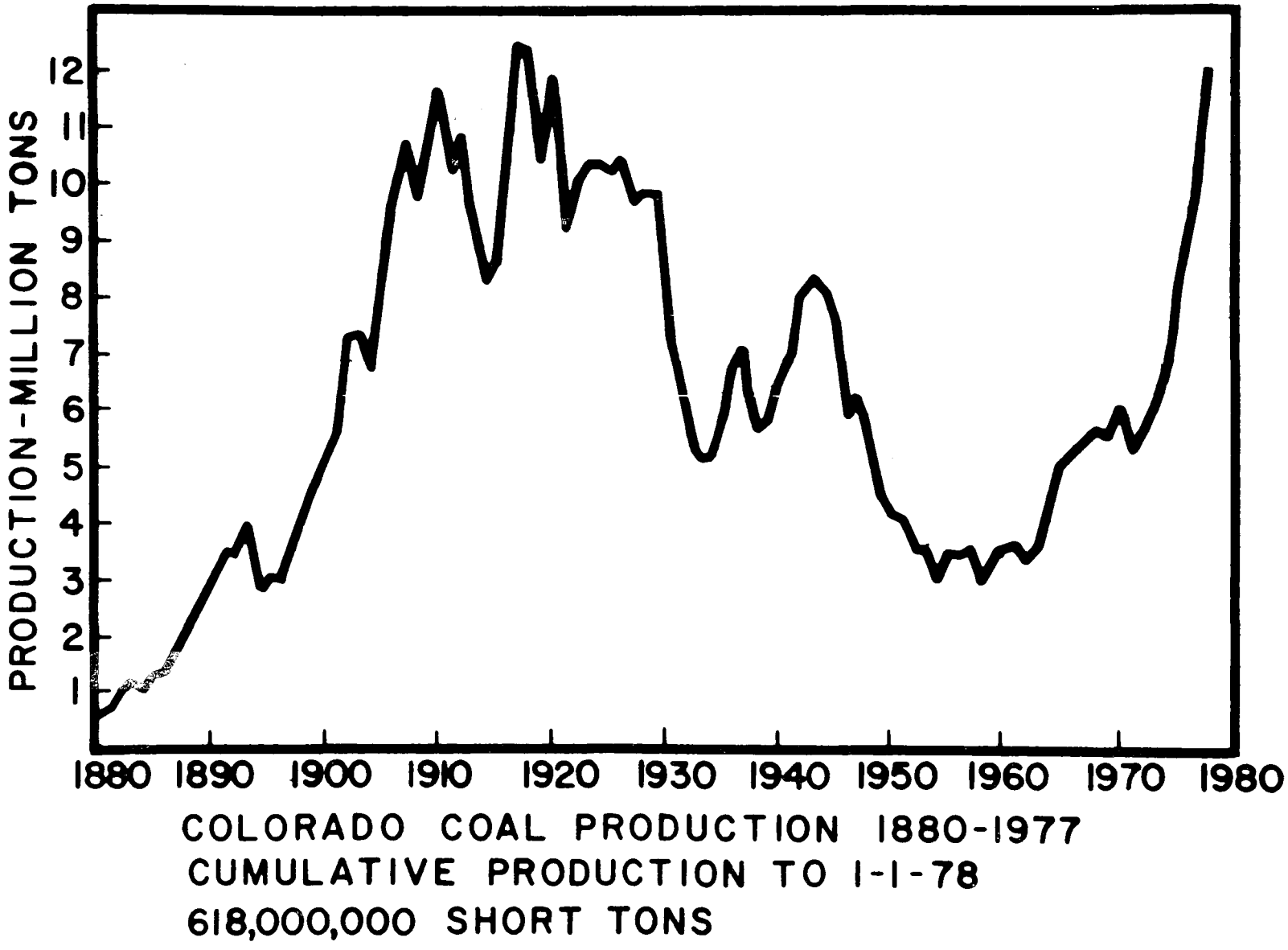


Fig. 1. Colorado coal production, 1880-1977.

According to the U.S. Bureau of Mines (1977), Colorado ranks 7th in the total U.S. demonstrated reserve base of coal (16.3 billion tons) and 4th in the reserve base of bituminous coal. Furthermore, Colorado ranks first in the reserve base of underground-minable, low-sulfur bituminous coal. Sulfur content of Colorado coal generally varies from 0.2 to 1.1% and averages approximately 0.5%. Ash content typically varies between 2.1 and 15%, averaging about 6%. As-received moisture content of most coals mined in the State ranges from 1.0 to 20% or so. Heating values vary from approximately 11,440 to 14,500 Btu/lb; average values are about 11,370 Btu/lb., as-received, and 13,905 Btu/lb. on a dry and ash-free basis (Hornbaker and others, 1976, p. 2, 3, 16). A significant part of Colorado's bituminous coal reserve base is of coking or metallurgical grade (Jones and Murray, 1978).

Of the 434.21 billion short tons of identified and hypothetical coal resources estimated to be remaining in the ground in Colorado to a depth of 6,000 ft., only 128.95 billion short tons (29.7% of the total) are classed as remaining identified resources (to a depth of 3,000 ft.) (Averitt, 1975. p. 14). However, these data are considered to be very preliminary, inasmuch as detailed or specific information on the occurrence and thickness of coal exists in only about 25 percent of the coal-bearing area of Colorado (Averitt, 1975, p. 43).

The U.S. Bureau of Mines (1977) estimates the demonstrated reserve base of Colorado coals (as of January 1, 1976) to be about 16.3 billion short tons, of which only 3.8 billion short tons (23% of the total) are surface-mineable. The demonstrated reserve base includes all coals, except lignite, that occur at depths above 1,000 ft; only bituminous coal and anthracite 28 in. or more in thickness, and subbituminous coal and lignite 60 in. or more in thickness, are included in the demonstrated reserve base. The Colorado Geological Survey estimates that over 80 percent of the total coal resources of the State (0-6,000 ft. of overburden) will be minable only by underground methods (Hornbaker and others, 1976, p. 1). Overall recovery of the total resources of the State probably will be much less than 50 percent of the coal in-place, unless major breakthroughs in mining technology are achieved. Even then, the thick, multiple coal beds typical of many parts of Colorado may defy efficient overall recovery by even the most advanced mining methods now conceivable. In some instances, in-situ combustion of deeply buried or steeply-dipping coal beds may be the only means by which to recover the energy contained in a large part of this State's coal resources (Murray and others, 1977).

Figure 2 shows the relative stratigraphic position and the geologic age of the coal-bearing rock units in each major geographic subdivision of Colorado. Figure 3 displays the locations of the coal regions and fields of the State.

According to Speltz (1976), most of Colorado's potentially surface-mineable coal is located in the Denver coal region (75% of the total--mostly lignite), in the San Juan River region (Nucla-Durango-Cortez area, 16%), and in the Green River region (Oak Creek-Craig-Axial area, 5%).

Recent work by the U.S. Geological Survey (Soister, 1974) indicates that approximately 20 billion short tons of lignite, in beds at least 4 ft thick occurring at less than 1,000 ft in depth, may exist in-place in the central part of the Denver basin. In modern times, no lignite has been mined for commercial purposes in the State, although several projects involving the surface mining of this resource in the Denver region are in the planning stage (Soister, 1974). However, urban growth pressures in the Front Range Corridor, as well as increasing oil and gas drilling activity in the region, will affect the amount of coal that ultimately will be legally minable.

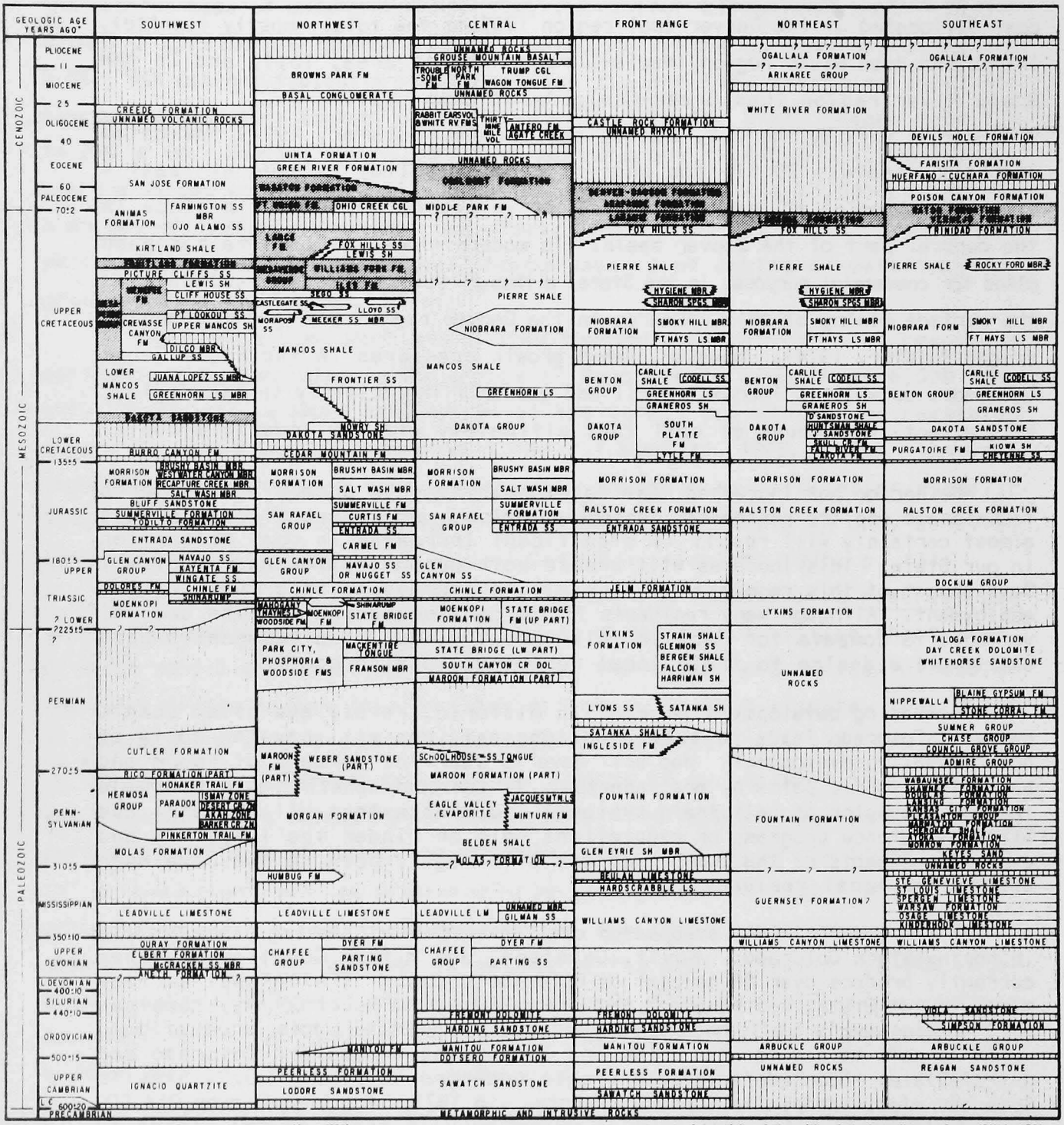
Whether or not increased coal development may be deemed advantageous to Colorado and its residents, increased national and international demands almost certainly will result in significant increases in coal production in our State. This increase will create both opportunities and problems. Development of this resource will result in increasing opportunities for employment. Although many residents in the coal-producing regions are not yet able to compete for jobs in this industry, many coal companies have expressed a desire to train local residents to mine coal.

Increasing development of coal in historic, rural, and often scenic parts of Colorado leads to such questions as: Who will pay the costs of new community development? Who will have to bear the burdens of "boom and bust" if historic patterns are repeated? Is the cost/benefit ratio favorable for the expansion of unit train systems? To what extent will Federal and State assistance programs or regulations help or hinder the longevity and expansion aspects of the coal industry with regard both to the developer and to the local residents?

At the present time, stepped-up coal development is taking place notably in northwestern Colorado. Routt, Gunnison, and Pitkin Counties together currently produce over 80 percent of Colorado's coal. The largest surface mines in the State, the Edna and the Energy Fuels, in Routt County, combined are producing nearly 5 million tons per year (41% of the State's total production), which is sold mainly to utilities and industries in eastern Colorado and out-of-State. Colorado's largest single underground mine is U.S. Steel's Somerset mine, located in Gunnison County. In 1977, it produced over 914,000 tons of high-grade coking coal, which is shipped by unit train to the company's steel mill near Provo, Utah.

COLORADO STRATIGRAPHIC CORRELATION CHART

COLORADO GEOLOGICAL SURVEY

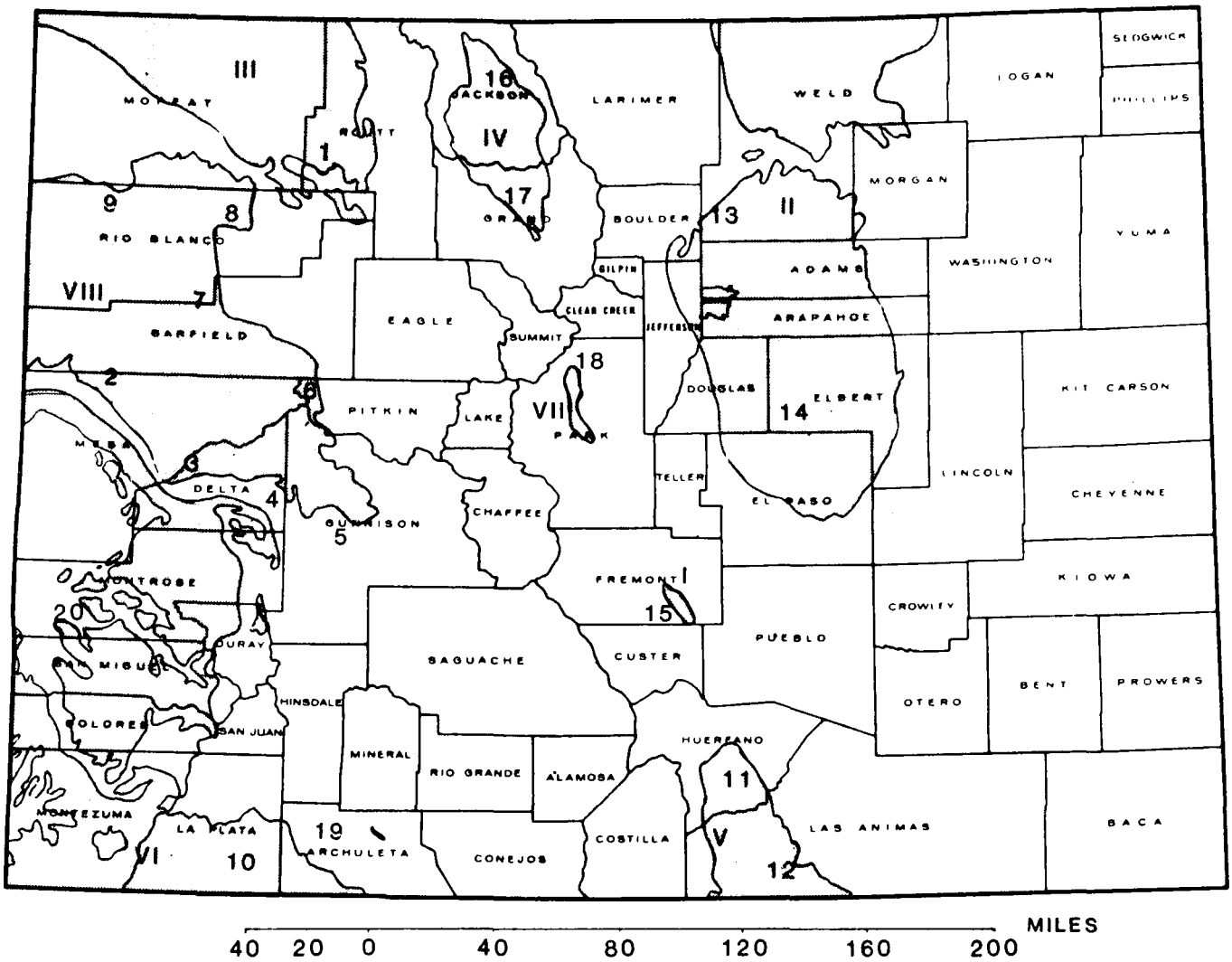


Compiled by Richard Howard Pearl and D Keith Murray (August 1974).
*Millions of years before present (Source Geochron Laboratories, Inc.)

Source of data Geologic Atlas of the Rocky Mountain Region (RMAG, 1972) and other publications Reviewed by selected members of the RMAG

■ **COAL-BEARING ROCK UNIT**

Figure 2. Colorado stratigraphic correlation chart.



COAL REGIONS AND FIELDS IN COLORADO

COAL REGIONS		COAL FIELDS			
I	Canon City (field)	1.	Yampa	11.	Walsenburg
II	Denver Basin	2.	Book Cliffs	12.	Trinidad
III	Green River	3.	Grand Mesa	13.	Boulder-Weld
IV	North Park	4.	Somerset	14.	Colorado Springs
V	Raton Mesa	5.	Crested Butte	15.	Canon City
VI	San Juan River	6.	Carbondale	16.	North Park
VII	South Park (field)	7.	Grand Hogback	17.	Middle Park
VIII	Uinta	8.	Danforth Hills	18.	South Park
		9.	Lower White River	19.	Pagosa Springs
		10.	Durango	20.	Nucla-Naturita

Fig. 3. Coal regions and fields in Colorado.

Due to the inaccuracies in the historical records, the figures shown on Table 1 are only approximations. The county compilations are more accurate than the coal region compilations, and regional totals have been adjusted to more accurately reflect county compilations and previously published cumulative production figures. The figures in Table 1b were derived from the Colorado Division of Mines county records.

Table 1. Coal production by coal-bearing region (refer to Fig. 3)

Table 1a. Cumulative production to January 1, 1978 (in millions of short tons, MST)

Rank	Coal Region (County) Production (% of State total)
1	RATON MESA (Huerfano & Las Animas Cos.): 248.873 (40.9%)
2	DENVER (Adams, Arapahoe, Boulder, Douglas, Elbert, El Paso, Jefferson, Larimer and Weld Cos.): 132.447 (21.8%)
3	UINTA (Delta, Garfield, Gunnison, Mesa, Pitkin, and Rio Blanco Cos.): 87.299 (14.4%)
4	GREEN RIVER (Moffat and Routt Cos.): 86.211 (14.2%)
5	CANON CITY (Fremont Co.): 40.387 (6.6%)
6	SAN JUAN RIVER (Archuleta, Dolores, La Plata, Montezuma, Montrose, Ouray, and San Miguel Cos.): 8.804 (1.4%)
7	NORTH PARK (Jackson Co.): 2.975 (0.5%)
8	SOUTH PARK (Park Co.): 0.725 (0.1%)

TOTAL = 607.721 (100%)

(Colorado Division of Mines county records show a total as of 1-1-78 of 618.035 MST, a difference of 10.314 MST).

Table 1b. 1977 regional production (in short tons)

COAL REGION	PRODUCTION	% OF TOTAL	NO. OF EMPLOYEES	NO. OF MINES	NO. SURFACE/ NO. UNDERGROUND
GREEN RIVER	7,422,188	62.0	921	13	9/4
UINTA	2,990,792	25.0	1,238	23	1/22
RATON MESA	742,315	6.2	530	5	3/2
NORTH PARK	495,956	4.1	97	2	2/0
SAN JUAN RIVER	124,120	1.0	52	5	2/3
CANON CITY	90,669	0.8	44	6	4/2
DENVER	105,103	0.9	62	1	0/1
SOUTH PARK	0	0.0	0	0	0

Table 2 summarizes by coal-bearing region the 1976 production levels and compares cumulative production estimates to the original in-place coal resources of each region to depths of 6000 feet (Hornbaker and others, 1976).

Table 2. 1976 coal production, cumulative production, and original in-place resources, by coal-bearing region.

Coal Region	% of 1976 Production	1976 Production (short tons)	Cum. Prod. to 1/1/77 (million short tons)	Total Resource Originally In-Place (conserv.est.) (million short tons)	% of In-Place Resources
Green River	64.00	6,060,496	78.789	57,907.0	25.00
Uinta	23.30	2,208,825	84.306	60,020.0	26.00
Raton Mesa	6.90	649,468	246.549	13,210.0	5.70
N. Park	2.90	270,085	2.479	28,735.0	12.50
San Juan River	1.20	114,809	8.679	27,300.0	11.90
Canon City	1.00	90,956	40.296	295.0	0.13
Denver	0.70	66,874	132.395	42,470.0	18.50
S. Park	---	---	0.725	227.0	0.09
	100.00	9,461,513	594.218[1]	230,164.0	99.82

Because of the lack of detailed information on the coal resources of Colorado, the above tabulation represents only in a general way the extent to which the estimated in-place coal resources in each region have been depleted by mining. The Colorado Geological Survey currently is evaluating the remaining coal reserves in each region, by coal bed and by county. This project is due to be completed early in 1979. The figures in Table 2 do not take into account the large amounts of coal (sometimes as much as 50% of the mined reserves) that are not recoverable, must be left in the ground as mine pillars, or are otherwise not considered as "produced coal" but rather as "wasted coal" for various reasons.

Table 3 presents a brief history of production since 1970, current production, and estimated future production by coal region. The projections of future production can be useful in predicting trends in activity. The slowdown in 1974 was due to a labor strike in certain coal mines. The production figures, given in short tons, were compiled by the authors, and the projections have been derived from the authors' most recent estimates.

Table 3. Production history and projections by coal-bearing region

Canon City Field			North Park Region		
1970	288,510		1970	None	
1971	247,443		1971	None	
1972	214,948		1972	Nome	
1973	247,172		1973	None	
1974	152,681		1974	7,899	
1975	147,318		1975	320,677	
1976	90,956		1976	270,085	
1977	90,669		1977	495,956	
1978	128,000	(projected)	1978	700,000	(projected)
1979	148,000	"	1979	650,000	"
1980	166,000	"	1980	300,000	"
Denver Region			**Raton Mesa Region**		
1970	581,183		1970	625,468	
1971	474,119		1971	520,936	
1972	574,707		1972	621,570	
1973	509,951		1973	624,045	
1974	300,295		1974	539,845	
1975	162,732		1975	632,207	
1976	66,874		1976	649,468	
1977	105,103		1977	742,315	
1978	60,000	(projected)	1978	794,000	(projected)
1979	90,000	"	1979	829,500	"
1980	400,000	"	1980	1,045,000	"
Green River Region			**San Juan River Region**		
1970	2,459,023		1970	92,195	
1971	2,159,368		1971	67,100	
1972	2,526,958		1972	104,068	
1973	2,895,585		1973	116,286	
1974	3,698,650		1974	116,636	
1975	4,674,213		1975	120,770	
1976	6,060,496		1976	114,809	
1977	7,422,188		1977	124,120	
1978	9,279,000	(projected)	1978	149,500	(projected)
1979	10,329,500	"	1979	169,000	"
1980	11,455,000	"	1980	185,000	"

Uinta Region		South Park Field
1970	1,974,683	No production since 1932.
1971	1,838,305	
1972	1,487,928	
1973	1,839,406	
1974	2,144,680	
1975	2,306,409	
1976	2,208,825	
1977	2,990,792	
1978	3,925,000 (projected)	
1979	5,526,000 "	
1980	6,722,000 "	

A state-wide increase in production since the 1960's has been due to several factors. First, since U.S. Steel's purchase of the Somerset Mine and contracting from other coking coal mines (e.g., those in Pitkin County), underground mining of coking coal has increased significantly. The Dutch Creek mines in Pitkin County re-opened in 1956 to produce coking coal, and L.S. Wood opened in 1966.

Second, although most underground mines closed in southeastern Colorado, large surface mines opened in northwestern Colorado, and increasing coal development currently is underway in that region. The coal being mined is high-grade bituminous steam coal with low sulfur and ash content, generally called "clean air compliance coal."

Third, the increased demand for coal-fired power plant fuel has prompted the recent opening of the Orchard Valley mine, located in Delta County, by Colorado Westmoreland, as well as of other mines in the Uinta region. This coal region (located in Delta, Garfield, Gunnison, Mesa, Pitkin, and Rio Blanco Counties) is projected to produce nearly 4 million tons in 1978, and to reach 6.5 million tons sometime between 1980 and 1982.

The Green River region already has surpassed 7 million tons of annual production and is projected to reach nearly 11.5 million tons per year by 1980 (see Table 3). Most of this coal is used to generate steam for electric-generation plants. Approximately two-thirds of the coal resources in this region are believed to be high-volatile C bituminous, and the remaining third A, B, or C subbituminous (Hornbaker and others, 1976, p. 10).

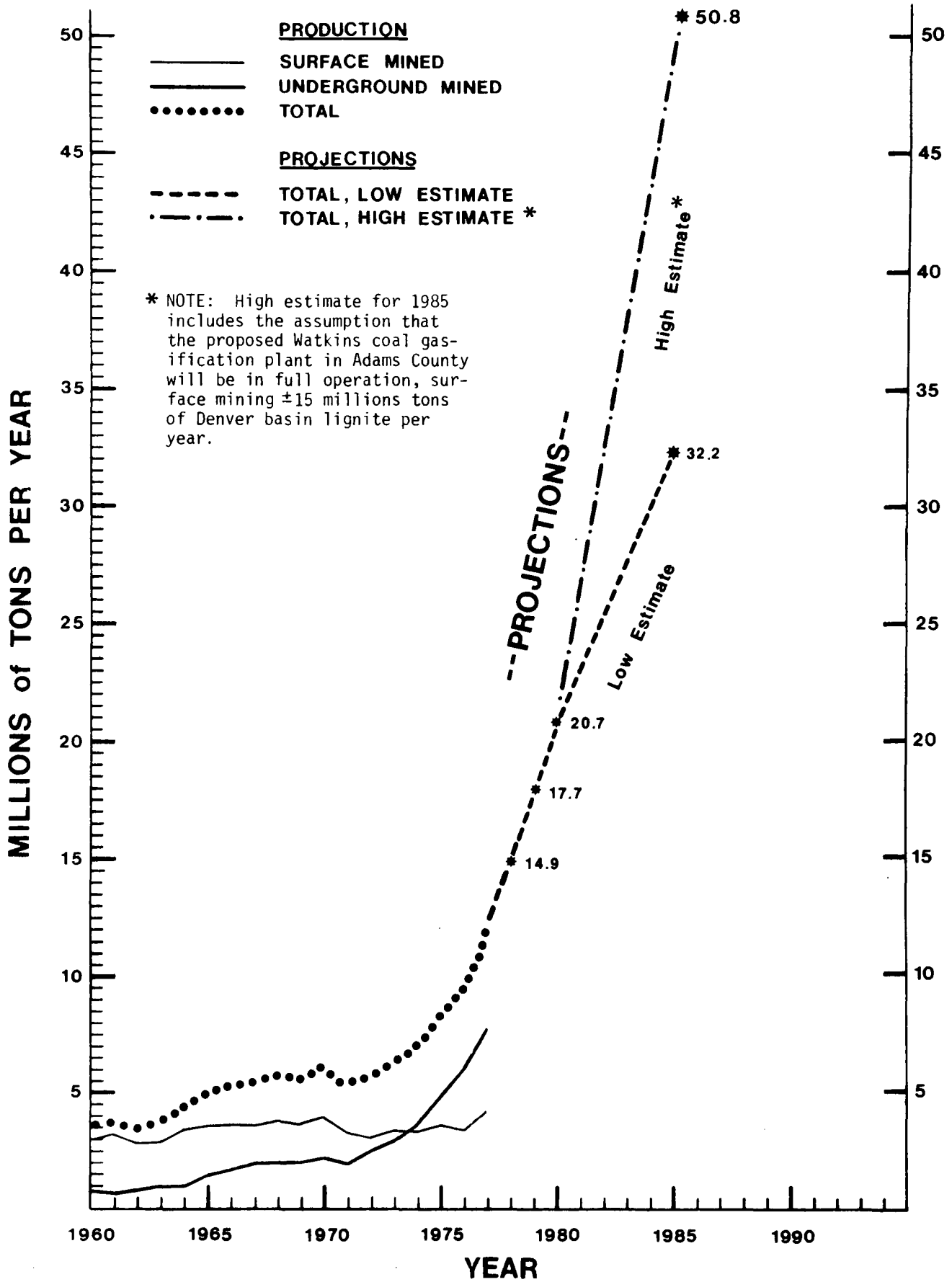


Fig. 4. Production history and projections for coal in Colorado, 1960-1985.

Table 4.--Range of analyses of Colorado coals on an "as-received" basis.

Regions, fields & coals	% Moisture	% Ash	Sulfur	Btu/lb	Ash fusion °F.
San Juan Region					
Dakota coals NE of Cortez	1.9- 8.1	5.0-18.3	.5- .8	10,440-13,630	2,110-2,910+
Nucla-Naturita area	2.5-13.5	6.1-12.8	.5-1.1	10,010-13,380	2,620-2,910+
Durango field	1.6-10.7	3.4-16.6	.6-1.2	10,860-14,070	2,020-3,000
Uinta Region					
Southwest Uinta Sub-region					
Book Cliffs field					
"Anchor seam"	8.2- 9.8	5.9- 9.8	1.0-1.7	11,910-12,330	2,190-2,790
"Palisade seam"	3.3-14.0	4.9-17.4	.5-1.6	10,950-13,560	2,130-2,910+
"Carbonera seam"	9.3-11.4	7.2-14.4	.4- .6	10,470-11,150	2,850
"Cameo seam"	5.4-11.5	5.2-15.5	.5-1.3	10,410-12,460	2,520-2,960
Grand Mesa field					
Coals in Paonia sh.	9.8-20.0	2.1-16.1	.5-1.8	9,360-11,670	2,060-2,970
Tongue Mesa field					
Several seams	14.2-16.0	6.7- 8.4	.5- .9	9,350-10,220	2,450-2,480
Southeast Uinta Sub-region					
Somerset field					
Bowie sh. coals	7.4-13.6	2.4-11.4	.5- .8	10,040-12,600	2,470-2,810
Paonia sh. coals	10.6-22.4	4.3-13.9	.3- .8	8,160-10,610	2,910+
Near center of field					
Bowie gp. "B" & "C"	2.3- 8.2	2.8-12.0	.4- .7	12,070-13,900	2,220-2,910+
Eastern part of field					
Paonia gp. "D" & "E"	4.2- 8.1	2.8-10.4	.4- .9	12,090-13,400	2,150-2,910+
Crested Butte field					
Six Paonia sh. seams	2.5-13.3	3.2- 9.1	.4-1.9	11,400-14,170	2,130-2,480
Carbondale field					
"Black Diamond" seam	11.1-14.1	2.1- 9.2	.5-1.4	10,360-12,310	2,210-2,470
"D", "Allen" & "Anderson"	3.8- 7.5	1.9-10.5	.4-1.5	11,840-13,530	2,160-2,840
"A", "B", & "C"	5.1- 8.9	3.5-16.2	.6-2.1	10,160-12,820	2,690-2,790
"Allen", "B", "Placita" &"Coal Basin"	1.0- 3.4	3.4-10.0	.5- .7	12,470-15,190	2,150-2,370
Northeast Uinta Sub-region					
Grand Hogback field					
"Black Diamond"	9.2	3.7	.6	11,970	2,210
"Wheeler seam"	3.4- 8.3	4.9-11.3	.3- .8	11,220-13,120	2,130-2,620
"Allen seam"	3.5-10.7	3.9- 7.9	.4- .5	11,600-13,270	2,060-2,370
Seven other seams	2.9-10.5	2.3-11.0	.4-1.1	11,100-13,060	2,090-2,910+
Keystone zone coals	3.7-10.3	5.4- 9.2	.3- .4	11,020-13,120	------
Danforth Hills field					
"Black Diamond" gp.	9.2-13.4	3.7-10.0	.4- .6	11,220-11,970	2,210-2,990
"Fairfield" gp.	9.4-14.4	2.2- 9.6	.3- .9	10,600-11,370	2,310-2,730
"Lion Canyon" gp	8.9-15.5	2.2- 9.6	.5-1.4	10,690-11,790	2,210-2,910+
"Collum seam"	11.4-15.4	2.2- 6.3	.3-1.0	10,140-11,770	2,220-2,480
Lower White River field					
Williams Fork coals	11.2-14.1	4.4- 8.5	.4- .5	10,800-11,230	2,280-2,900
Green River Region					
Yampa field					
"Black Diamond gp."	6.3-12.2	4.3-11.3	.3- .9	11,090-12,560	2,250-2,780
"Fairfield gp."-"Wolf Ck","Wadge","Lennox	7.7-11.8	3.4-11.5	.3- .6	10,740-12,260	2,410-2,910
"Upper or Twenty Mile gp."	14.2-16.9	4.1- 5.4	.4- .9	10,360-11,040	2,070-2,480
"Lorella" & "Kimberly"	19.6-21.8	4.1- 6.5	.5- .7	9,660- 9,720	2,010-2,260
"Campbell" & "Seymour"	17.1-20.5	3.9- 7.8	.2- .4	9,500-10,080	2,050-2,420
Fort Union "Sparks"	20.7-23.0	11.2-13.8	1.8-2.7	8,250- 8,710	------
Raton Basin Region					
Walsenburg field					
Vermejo coals	5.3-10.2	7.2-14.4	.4-1.3	11,050-12,880	2,210-2,840
Raton coals	2.5- 4.2	5.3-13.5	.4-1.0	12,660-13,340	2,230-2,730
Trinidad field					
Vermejo coals	1.6- 5.8	7.7-21.8	.5-1.0	11,430-13,510	2,290-2,910
Raton coals--"Frederick","Primero" et al	1.0- 4.5	5.3-16.4	.4-1.1	12,200-13,970	2,230-2,910+
Canon City Region					
Canon City field					
Seven Vermejo coals	5.4-15.0	4.6-17.7	.3-1.1	10,110-12,010	2,030-2,720
South Park Region					
South Park field					
Como area mines	6.3-15.5	1.3-6.4	.4- .5	9,780	2,700
North Park field					
Coals in Coalmont fm.	13.6-22.8	2.8-13.4	.1- .9	8,840-10,870	2,100-2,680
Denver Basin Region					
Colorado Springs field					
"A" seam	19.2-26.9	3.9-10.2	.2- .5	9,270-10,140	2,150-2,470
Buick-Matheson area	33.1-35.0	7.8-15.7	.4-1.1	6,150- 7,340	2,140-2,400
Dawson lignite	33.1-34.4	13.9-18.2	.1- .5	5,510- 6,700	2,480-2,530
Boulder-Weld field					
Seams "3", "5" & "6"	15.5-25.8	3.3-10.1	.2- .9	8,890-10,660	1,990-2,470

1976 COAL PRODUCTION - MISCELLANEOUS STATISTICS

Total Production

Colorado produced 9,461,513 short tons of coal in 1976, which was a 14 percent increase over 1975.

Bituminous/Subbituminous Output

The State's output of 9.46 million tons in 1976 consisted predominantly of bituminous coal (62%), with 38% subbituminous.

Bed Thickness and Overburden

The average thickness for most coal beds in Colorado ranges from 4 to 15 feet. The thickness of overburden ranges from 0 to over 2,500 feet.

Surface-Mined Coal

The 6.097 million tons of surface-mined coal made up 64.4% of the State's total 1976 production and came from 16 mines. Compared to 1975, production increased 24.5% and the number of mines increased by one.

Underground-Mined Coal

The 3.364 million tons mined underground constituted 35.6% of the 1976 production and came from 27 mines. Compared to 1975, production decreased 3% and the number of mines decreased by 3.

Metallurgical-Grade Coal

The 2.754 million tons mined made up 29% of the State's total 1976 production and came from 12 underground mines. Compared to 1975, production decreased 7%. This grade of coal constituted 82% of all coal mined by underground methods in Colorado during 1976.

Estimated Coal Prices, 1976

Steam/Stoker	-	$12-18/ton
Lump	-	$15-25/ton
Metallurgical	-	$20-40(+)/ton

Coal Exported

1975: 2.560 million ST (30.9% of total State production)[1]
1976: 3.642 million ST (38.5% of total State production)[2]

Coal Imported

from Wyoming, Arkansas, and Oklahoma (Glass, 1975)

1975: 2.536 million ST (30.6% of total) (exports less than imports)[1]
1976: 3.686 million ST (39.0% of total) (exports greater than exports)[1]

Number of Mines Producing in 1976

43 mines produced: 27 underground and 16 surface. Five of these closed during the year, 1 test adit terminated, 3 mines were in preparation and producing small amounts, while 8 closed down production by the end of the year.

Total Number of Operating Licenses Issued During 1976

64 (includes one tipple only): 66% or 42 are underground mines (including one test adit), and 34% or 22 are surface mines.

Production by Mine Size

No. Mines			tpy			tons	% Prod.
27	each	producing	0-	100,000	produced	575,599	6.0%
6	"	"	100,000-	250,000	"	871,571	9.2%
3	"	"	250,000-	500,000	"	914,300	9.7%
3	"	"	500,000-	1,000,000	"	2,087,904	22.1%
4	"	"	over 1,000,000		"	5,012,139	53.0%
						9,461,513	100.0

[1] Colorado Div. Mines, 1976.
[2] Refer to Table 9 and Part IV.

1977 COAL PRODUCTION--MISCELLANEOUS STATISTICS

(Source: Colorado Division of Mines and Colorado Geological Survey)

Total Production

Colorado produced 11,971,143 short tons (ST) of coal in 1977, which is a 26.5 percent increase over 1976, and the highest sinced 1920, when 12.5 million tons were produced.

Bituminous/Subbituminous Output

Approximately 10.82 million ST (90.4% of the Statewide total) of bituminous coal was produced in 1977, together with 1.15 million ST (9.6% of the total) of subbituminous coal (about 52% of the subbituminous coal production came from mines that produce coal only of this rank; the balance was from mines in northwestern Colorado that produce coal of both ranks in some undesignated proportion; we have assumed that this proportion is approximately 50:50). No anthracite or lignite was produced during 1977.

Production by Type of Mining

Mine Type	1977 Prod'n. (short tons)	No. of Employees	Ave. Annual Prod'n./Miner. (short tons)	No. of Prod'g. Mines
Surface	7,727,768	1,307	5,912	21
Underground	4,243,375	1,637	2,592	34
	11,971,143	2,944	4,066	55

As Percent of Total State Production

Surface-mined coal: 64.6% (64.4% in 1976)
Underground-mined coal: 35.4% (35.6% in 1976)
100.0%

Metallurgical-Grade Coking Coal

The 2.894 million S.T. mined made up 24.2% of the State's total 1977 coal production (compared to 29% in 1976) and came from 13 underground mines. Coking coal comprised 68.2% of all underground-mined coal in 1977, down from 82% in 1976; however, production of this grade of coal in 1977 increased 5% over that produced in 1976.

Geographic Distribution of Coal Mines

Western Colorado: 11,033,056 ST (92.2% of total)
Eastern Colorado: 938,087 ST (7.8% of total)

Total Mines Licensed During 1977

Underground: 47 (34 produced coal)
Surface: 21 (21 " ")
Total 68 (55 " ")

Average Number of Days Worked Per Mine: 169

Average Daily Production

By mine: 70,835 S.T.
Per miner: 24 S.T.

Loading Methods: 97.7% of the coal produced in 1977 was mechanically loaded, using 27 loading machines.

Mining Machinery: 65 continuous miners and 8 electrical cutting machines were employed.

Rail Connections: 21 mines (38% of those that produced coal during 1977) had direct rail connections.

Coal Treated

Washed: 1,221,555 S.T. (10.2% of total produced)
Chemically treated or oiled: 15,157 S.T. (0.1% of total produced)

Coal Shipped Out-of-State, 1977

County	Short Tons	% of Total County Prod'n. Exported
Archuleta	300	7.4
Delta	268,075	81.9
Fremont	7,547	8.3
Garfield	29,715	42.0
Gunnison	1,073,175	79.7
Jackson	478,746	96.5
La Plata	11,135	43.4
Las Animas	324	0.04
Mesa	266,732	88.9
Moffat	274,490	24.7
Pitkin[1]	920,562	98.3 (est.)
Routt	1,395,365	22.1
Total	4,726,166 (39.5% of total State production)	

[1] The Colorado Division of Mines 1978 Coal Summary lists 506,547 S.T. as having been shipped out-of-State. However, it is our understanding that all of Mid-Continent Coal & Coke Company's production--920,562 S.T. in 1977--is exported to Utah and California.

Table 5 lists the cumulative production by county from 1864, when coal mining records in Colorado began (see also Figure 5) and also shows where current (1977) activity is taking place.

Table 5. Cumulative production by county (short tons)

County	1976 Prod.	1977 Prod.	Cum. to 1-1-78
Adams			37,112
Arapahoe			36,259
Archuleta		4,070	40,620
Boulder			43,321,306
Delta	14,023	327,352	4,972,927
Dolores			62,631
Douglas			27,367
Elbert			108,948
El Paso			15,208,890
Fremont	90,956	90,669	40,386,525
Garfield	1,425	70,793	7,049,672
Gunnison	1,246,723	1,347,182	48,255,414
Huerfano			75,525,388
Jackson	270,085	495,956	2,975,121
Jefferson			6,697,939
La Plata	16,870	25,648	6,509,871
Larimer			54,284
Las Animas	649,468	742,315	173,348,315
Mesa	57,134	300,199	7,549,626
Moffat	507,010	1,113,015	8,250,293
Montezuma			174,515
Montrose	97,939	94,402	1,975,103
Ouray			14,216
Park			724,658
Pitkin	889,520	936,430	18,838,755
Rio Blanco		8,836	632,235
Routt	5,553,486	6,309,173	77,960,812
San Miguel			26,429
Weld	66,874	105,103	66,956,394
TOTAL	9,461,513	11,971,143	607,721,625[1]

[1] This figure is approximately 10.3 million tons less than that published by the Division of Mines in their Annual Coal Summary for 1977 (618,035,419 tons). The reason for this discrepancy probably lies in cumulative errors over the years, together with the fact that some of the pre-1900 production data pre-dates the record-keeping by State agencies.

Tables 6 and 7 list 1977 coal production by county and cumulative production to date from the leading producing counties.

Table 6. 1977 Coal Production by County
(Colorado Division of Mines, 1978)

County	Production (S.T.)	% of Total	No. of Employees	No. Mines Prod'g. (Surface/Underground)
Routt	6,309,173	52.70	471	8(6/2)
Gunnison	1,347,182	11.25	454	5(0/5)
Moffat	1,113,015	9.30	450	5(3/2)
Pitkin	936,430	7.82	456	7(0/7)
Las Animas	742,315	6.20	530	5(3/2)
Jackson	495,956	4.14	97	2(2/0)
Delta	327,352	2.73	136	4(1/3)
Mesa	300,199	2.51	116	1(0/1)
Weld	105,103	0.88	62	1(0/1)
Montrose	94,402	0.79	24	1(1/0)
Fremont	90,669	0.76	44	6(4/2)
Garfield	70,793	0.59	66	5(0/5)
La Plata	25,648	0.21	23	3(0/3)
Rio Blanco	8,836	0.07	10	1(0/1)
Archuleta	4,070	0.03	5	1(1/0)
	11,971,143	99.98	2,944	55(21/34)

(1976 production: 9,461,513 S.T.)

Table 7. Cumulative coal production (million short tons), top 10 counties as of January 1, 1978 (Colorado Division of Mines and Colorado Geological Survey).

1.	Las Animas	173.348
2.	Routt	77.961
3.	Huerfano	75.525
4.	Weld	66.956
5.	Gunnison	48.255
6.	Boulder	43.321
7.	Fremont	40.387
8.	Pitkin	18.839
9.	El Paso	15.209
10.	Moffat	8.250
	TOTAL	568.051

The cumulative coal production of 568.051 million tons shown on Table 7 comprises over 93% of Colorado's total production. Las Animas, Huerfano, Routt, and Weld Counties have produced 65% of the total State production.

Comparison of Figures 5 and 6 shows the change in location of Colorado's most active coal mining counties. It is apparent that cumulative production is highest in south-central Colorado. Most of the mines in that region were underground mines, which could, at that time, be mined economically because of the high-grade coal accessible there, much of which was of coking grade.

Demand for bituminous coal to generate steam in power plants led to the opening of large strip mines in northwestern Colorado in the early 1970's. The high rate of production of Colorado's historically large producers in Gunnison County is being maintained. Coal production in south-central Colorado (Huerfano and Las Animas Counties) has greatly decreased in recent years due to higher mining costs, market demands, and other considerations. However, this trend is slowly being reversed.

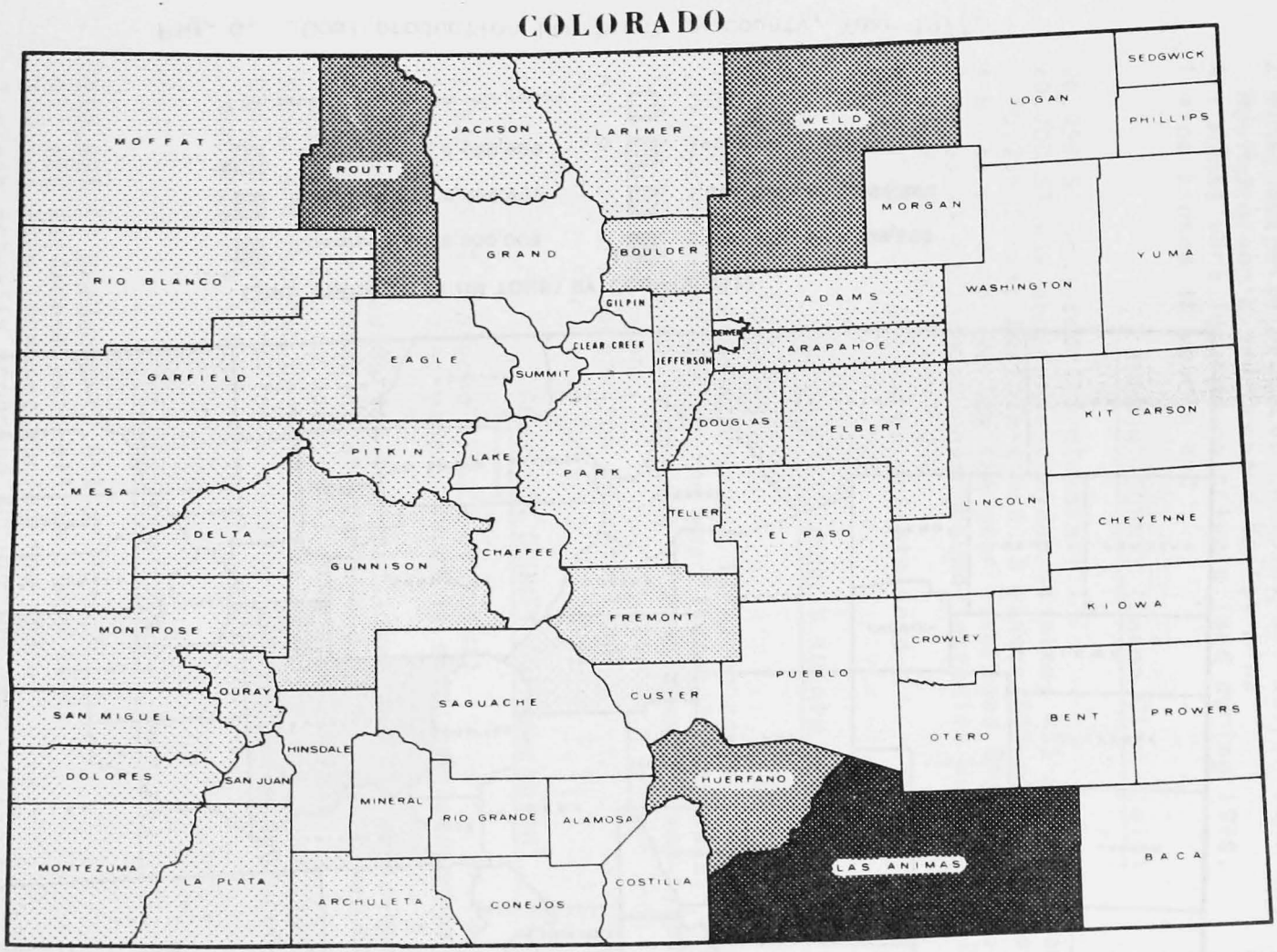


Fig. 5. Cumulative production (in tons) by county to January 1, 1978.

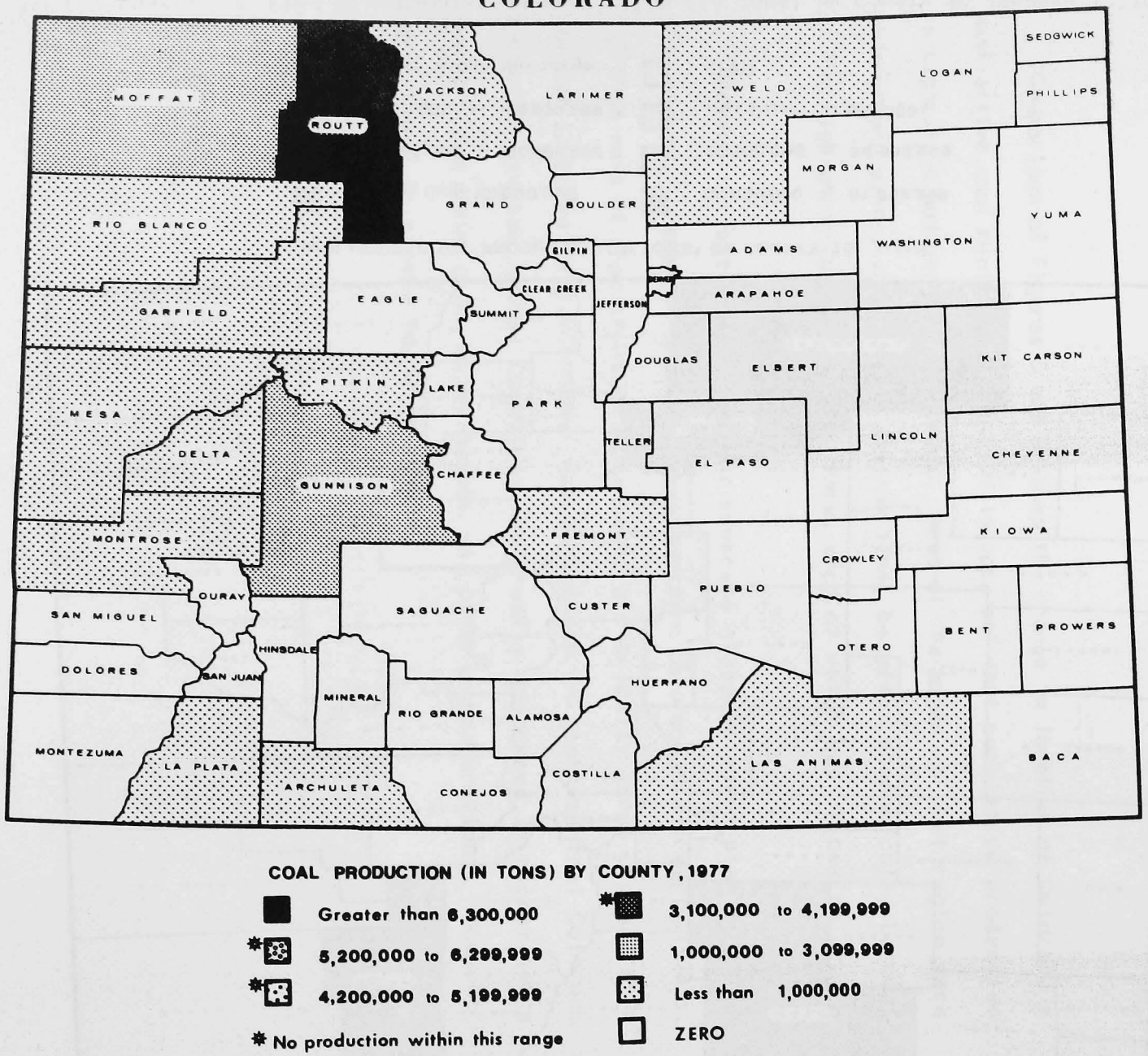


Fig. 6. Coal production (in tons) by county, Year 1977.

1976 COLORADO COAL PRODUCTION DATA BY COUNTY
(Colorado Division of Mines and Colorado Geological Survey)

DELTA COUNTY (Uinta region)

14,023 short tons (ST) produced (0.1% of total)
All was underground-mined; all is steam coal
2 mines producing, 1 preparing to open at end of year (total 66 employees)
2 mines actually produced in 1976; all but 63 tons came from Colorado Westmoreland's new Orchard Valley mine
All mines were located on private land during 1976.
1 mine closed at year's end

FREMONT COUNTY (Canon City field)

90,956 ST produced (1% of total)
40,700 ST was underground-mined (1 mine; 45% of total for county); 50,256 ST was surface-mined (3 mines: 55% of total); all is steam coal.
4 mines produced during the year (averaged 25 employees, total)
2 mines (1 surface, 1 underground) actually were producing at year's end; 1 was closed, 1 was idle.
All mines are located on private land.

GARFIELD COUNTY (Uinta region)

1,425 ST (0.015% of total)
All was underground-mined; all is steam coal.
2 mines produced during the year (total 3 employees)
1 mine actually was producing at year's end, 1 was closed, 1 new mine was preparing to open.
All mines are located on private land.

GUNNISON COUNTY (Uinta region)

1,246,723 ST produced (13.2% of total)
All was underground-mined; 99.6% is metallurgical-grade coal. (1,241,901 ST produced)
6 mines produced during the year (averaged 438 employees, total)
5 mines were producing at year's end, 1 test adit was closed, 1 new mine was preparing to open (will mine anthracite).
Mines are located on both Federal and private land (but mostly on Federal).
U.S. Steel Corporation's captive Somerset mine produced 0.95 million ST during 1976 (76.2% of the county's total).

JACKSON COUNTY (North Park region)

270,085 ST produced (2.85% of total)
All was surface-mined; all is steam coal.
3 mines were licensed during the year.
2 mines actually produced during the year (total of 40 employees); 92.5% was produced by the Marr Strip mine.
All mines are located on private land.

LA PLATA COUNTY (San Juan River region)

16,870 ST produced (0.2% of total).
All was underground-mined; all is steam coal.
4 mines were licensed during the year.
2 mines actually produced during the year (total of 21 employees); only one mine was producing at year's end; all but 100 tons was produced by the King mine.
Mines are located on both Federal and private land (most of the production came from Federal leases).

LAS ANIMAS COUNTY (Raton Mesa region)

649,468 ST produced (6.9% of total)
4 mines were licensed during the year (2 underground, 2 surface); 95.3% is coking coal.
1 underground mine (CF & I Steel's captive Allen mine, which produced 95.3% of county's total), 1 surface mine (4.7%) were producing at year's end; 1 underground mine (CF & I Steel's captive Maxwell mine) was preparing to open.
All mines are located on private land.

MESA COUNTY (Uinta region)

57,134 ST produced (0.6% of total)
All was underground-mined, all is steam coal.
3 mines were licensed during the year.
2 mines (total, 64 employees) actually were producing at year's end (all but 28 tons came from the CMC mine).
All mines are located on private land.

MOFFAT COUNTY (Green River region)

526,126 ST produced (5.6% of total).
76.3% was underground-mined, 23.7% was surface-mined; all is steam coal.
7 mines were licensed during the year.
3 mines produced during the year; 1 underground mine was producing at year's end (total, 253 employees); 1 surface mine closed during the year; the large Trapper (Craig) and Colowyo surface mines were in preparation.
75.4% of the production came from the Wise Hill #5 underground mine.
Most mines are located on State land, 1 on private land.

MONTROSE COUNTY (Uinta region)

97,939 ST produced (1% of total)
All was surface-mined, all is steam coal.
1 mine produced during the year (Nucla strip, with 24 employees).
Coal is dedicated to the Nucla power plant.
The mine is located on private land.

PITKIN COUNTY (Uinta region)

889,520 ST produced (9.4% of total).
All was underground-mined, all is coking coal.
7 mines were licensed during the year; 5 mines (Mid-Continent Coal & Coke Company's Coal Basin mines) produced during the year; 2 mines (Anschutz Coal's Thompson Creek mines) were in preparation during the year (total, 385 employees for all 7 mines).
Most of the produced coal is exported to steel mills in Utah and California.
All mines are located on private land.

RIO BLANCO COUNTY (Uinta region)

No production during 1976.
1 underground mine (with 5 employees) was in preparation at year's end.

ROUTT COUNTY (Green River region)

5,553,486 ST produced (58.7% of total)
5,539,277 ST (99.7%) came from 6 surface mines; 14,209ST (0.3%) came from one underground mine; all is steam coal.
9 mines (6 surface, 3 underground) were licensed during the year (total, 360 employees); 1 underground and 4 surface mines were producing at year's end; 1 surface mine closed during the year.
45% of the county's total (3.01 million ST, which is 31.8% of the State's total) was produced by Energy Fuels.
Mines are located on Federal, State, and private land.

SAN MIGUEL COUNTY (San Juan River region)

No production during 1976.
1 underground mine was licensed during the year.
Mine is located on private land.

WELD COUNTY (Denver region)

66,874 ST produced (0.7% of total).
All was underground-mined; all is steam coal.
2 mines produced during 1976 (total, 71 employees), both owned by Imperial Coal Co.; the Eagle mine closed, the Lincoln mine opened during the year.
Both mines are located on private land.

PART II. COAL MINES IN COLORADO

DATA ON INDIVIDUAL MINES

Table 8 is keyed to Figure 7. This list includes new mines in preparation and mines in production, as well as mines that are temporarily inactive, or permanently closed mines that still retained a 1977 license. However, mines licensed in 1976 which closed that same year will not be listed if a new 1977 license was not requested. Also, mines under new ownership may be listed in Table 8 under their new names.

Table 8. Locations of coal mines licensed as of December 31, 1977

Map No.	Coal Region	Mine Name	Surface (S)or Underground(U)	Location Sec.	Twp.	Rge.
1	San Juan River	Martinez	S	30	34N	4W
2	Uinta	King & Tipple	U	15	13S	91W
3	"	Orchard Valley (Converse)	U	24	13S	92W
4	"	Red Canyon #1 (Coalby #2)	U	12	13S	95W
5	"	Tomahawk Strip	S	10,15,16	13S	95W
6	Canon City	Black Diamond Strip (Old Corley, New GEC)	U/S	24	20S	70W
7	"	Cedar Canon Strip	S	35	19S	70W
8	"	Golden Quality #5	U	2	20S	70W
9	"	Hastings Strip	S	19	20S	69W
10	"	Newlin Creek	U	30,31	20S	69W
11	"	Twin Pines	U	1	20S	70W
12	Uinta	East Salt Creek	burned out	9	7S	102W
13	"	Eastside	U	24	5S	92W
14	"	NuGap #3	U	24	5S	92W
15	"	Spink Canyon	closed		7S	102W
16	"	Sunlight (Old Four Mile)	U		7S	89W
17	"	Bear	U	9,16	13S	90W
18	"	Hawks Nest East #2	U	11	13S	90W
19	"	Hawks Nest West #3	U	11	13S	90W

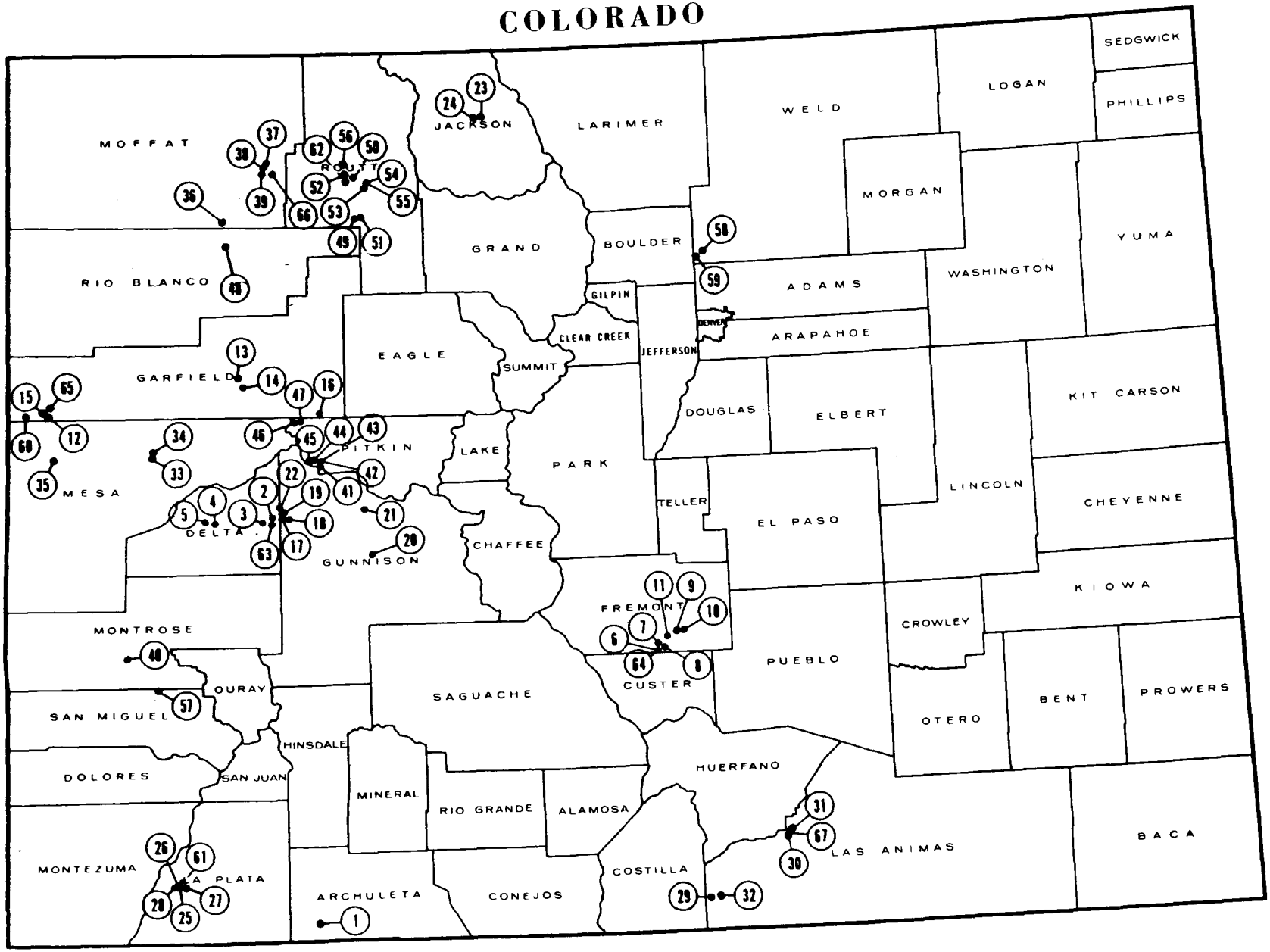


Fig. 7. Map of licensed coal mines in Colorado, 1977.

20	"	O.C. Mine #2	U	16	15S	86W
21	"	Peanut	U	28	13S	86W
22	"	Somerset	U	8	13S	90W
23	No. Park	Canadian Strip	S	2	8N	78W
24	"	Marr Strip #1	S	36	8N	78W
25	San Juan River	Blue Flame	U	31	35N	11W
26	"	Hay Gulch	U	36	35N	12W
27	"	King	U	32	35N	11W
28	"	Peacock	U	29	35N	11W
29	Raton Mesa	Allen	U	27	33S	68W
30	"	Healey Strip	S	21	30S	65W
31	"	Jewell Strip	S	21	30S	65W
32	"	Maxwell	U	29	33S	67W
33	Uinta	CMC (New Roadside, Old P.V., and Riverview)	U	34	10S	98W
34	"	Cameo	U	27,28,33,34	10S	98W
35	"	McGinley #1	U	5	9S	100W
36	"	Colowyo	S	2,3,4,9,10	3N	93W
37	Green River	Trapper (Craig)	S	var.	5N,6N	90W,91W
38	"	Eagle #5 (Wise Hill #5)	U	31	6N	91W
39	"	Eagle #9 (Wise Hill #9)	U	32	6N	91W
40	San Juan River	Nucla Strip	S	25,26	47N	16W
41	Uinta	Bear Creek	U	21	10S	89W
42	"	Coal Basin	U	5	10S	89W
43	"	Dutch Creek #1	U	17	10S	89W
44	"	Dutch Creek #2	U	17	10S	89W
45	"	L.S. Wood	U	8	10S	89W
46	"	Thompson Creek #1	U		8S	89W
47	"	Thompson Creek #2	U	34	8S	89W
48	"	Rienau #2	U	29	2N	93W
49	Green River	Apex #2	U	22	4N	86W
50	"	Blazer	U	36	7N	87W
51	"	Edna Strip & Test	S	2	4N	86W
52	"	Ellts (Same as Meadows Strip #1)	S/U	23	6N	87W

Table 9 shows the status of coal mine operations. Table 9a, "1974 Coal

53	"	Energy Strip #1	S	8	4N	86W
				32,33	5N	86W
54	"	Energy Strip #2	S	19,30	5N	86W
				25	5N	87W
55	"	Energy Strip #3	S	1,2	5N	86W
56	"	Seneca #2	S	1,2,3	5N	87W
				34,35,36	6N	87W
57	San Juan River	Elder	U	20	45N	13W
58	Denver	Eagle	U	15	1N	68W
59	"	Lincoln	U	24	1N	68W
60	Uinta	McClane Canyon		21	7S	102W
61	San Juan River	Coal Gulch (Old Victor)	U	15,16,20, 21,22	35N	10W
62	Green River	Meadows Strip #1 (Eilt's Property)	S	23,24,26	6N	87W
63	Uinta	Blue Ribbon	U	2	13S	91W
64	Canon City	GEC (Old Black Diamond)	S		19,20S	69W
65	Uinta	Munger	U	27	7S	102W
66	Green River	Wms. Fork Strip #2	S	30,31	6N	91W
67	Raton Mesa	Delagua Strip (Berwind)	S	15	31S	65W

Table 9 shows the status of coal mine operations. Table 9a, "1976 Summary, Licensed Coal Mines - Production, Contracts, Sales, and Transportation Data," displays the mines licensed in 1976. Table 9b, "Licenses not renewed in 1977," displays the 1976 mines that did not renew in 1977. Table 9c, "New Mines Licensed in 1977," displays mines newly licensed in 1977.

The tabulations include information pertaining to mine production history, current production figures, and production projections. Another major portion of the tabulation summarizes the known contract and spot sales of coal by each of the mines. Most sales cited are believed to be either spot sales or short-term (less than 2-year) contracts. Many of the producers contacted were reluctant to identify the user and destination; most of the producers indicated their sales were short contracts or were renewing old contracts. The destination state is listed in the "Shipped to" column.

Where more than one specific purchaser is given, each line should be followed across for more information pertaining to each sales agreement. For instance, the Black Diamond, Bear, Canadian Strip, Marr Strip, King Coal, Pitkin County mines, Edna Strip, Energy Strips, Healey Strip, Williams Fork Strip, Wise Hill #5, Nucla Strip, and Eagle mines all name more than one purchaser; for more information on each sales agreement, follow each line across for destination State, the quantity and duration of the sales agreement, the price of the coal as sold, and the transportation arrangements for its shipment. (Other explanations may also be found in the column headed "Remarks, Future or 1/78 Status" and may not pertain to a specific sales agreement.)

The data in Table 9 are based on information collected during the coal mine survey conducted in early 1977 by Hebb and Curtin, of the Colorado School of Mines, and by Janet Schultz and Hollis Fender, of the Colorado Geological Survey. All addresses were updated in January 1978 and new data were added in the column headed "Future or 1/78 Status." The cumulative production column, the 1977 production column, and the projected production columns were all added to supplement the surveyed information. Finally, all information was verified in early 1978 by telephone conversations with the owner or operator for the present publication.

Table 9a.--1976 summary, licensed coal mines--production, contracts, sales, and transportation data.

COUNTY	MINE (Operator)	Cumulative Production thru 1975	1976 PRODUCTION	1977	1978 (thousand tons) PROJECTIONS	1979	1980	COAL CONTRACT AND SALES DATA: 1976 Purchaser	Shipped to	Quantity/Duration	Remarks	Future or 1/78 Status	Transportation Plans
Delta	Coalby #2 (See Red Canon #1)	61 (1975 only)	63									Depleted	
	Converse (See Orchard Valley)	18936 (1913-1936) (1975 only)	0	0	0	0	0	See Orchard Valley Mine			Colorado Consolidation Coal Co. sold to Colorado Westmoreland, Inc.		
	King (Coors Bowie Mine) Adolph Coors Company Star Route L, Box 24 Paonia, CO 81428 (Louis Gaspar)	2996239 (1903-1974)	0	0	0	0	0	Adolph Coors Company	CO.		For plant boilers.	Needs new mine plan; no plans as of 1/78	
	Orchard Valley Colorado Westmoreland, Inc. P.O. Box E Paonia, CO 81428 (Ron Stukey)	(See Converse)	13960	286,129	550	600	700	N. Ind. PSC	IND.	650,000tpy±50,000 15yrs.	@16.26/ton	1979 option adds 100,000tpy Current mine life without lease extension is 2-3 yrs. Contracts negot.	Truck 4.5 miles from crusher to load out facility; DRGW by unit train.
	Red Canyon #1 Coalby Mining Company Route 1, Box 167 Cedaredge, CO 81413 (Joe Belden)	233014 (1923-1970)		412	closed	0	0	Local only	CO.	500-1000(1977)	$23/ton	Temporary 1977 closure.	
Fremont	Black Diamond Strip G.E.C. Minerals, Inc. P.O. Box 225 Florence, CO 81226 (Dean McKinnon)	1192557 (1933-1974)	44851	30079	50	50	50	Local Domestic Colo. State Pen.-Canon City Colo. State Hosp.-Pueblo WN Clark Power Plant-Canon City Raton Municipal Power Plant WN Clark Power Plant-Canon City	CO. CO. CO. CO. N MEX. CO.	5000 tpy 4000 tpy 3000 tpy 20000 tpy 15000 tpy 2000 tpy	$20-25/ton $22/ton $10-15/ton	Being stripped as GEC S&A mine. CF&I buys for in-house heating.	(5-8/winter week) 25-ton truck (3-5/summer week) 75-ton truck twice weekly 80-110 tons trucked 4-5 days/week 50-70 tons trucked 5-6 days/week 25-ton truck approx. 10 miles unit train.
	Cedar Canyon #1,#2 Cedar Canyon Company Route 1, Box 113 Florence, CO 81226 (Casey Alvedrez)	1003161 (1932-1975)	2152	2328	3	0	0	No local			W.N. Clark power plant proposed contract		25-ton truck 10 miles to rail
	Corley S & A (See GEC Mine)	1303758 (1937-1975)	3253	0	0	0	0	Depleted early 1976-production went to Black Diamond					
	Golden Quality #5 Golden Quality Coal Company 1403 Birch Canon City, CO 81212 (Tony Caresti'a)	300190 (1947-1975)		0	0	0	0				no plans	(idle reopening unknown)	
	Twin Pines Twin Pines Coal Company 1780 Brookside Avenue Canon City, CO 81212 (Joe Carpine)	367426 (1956-1975)	40700	37114	45	45	45	Local WN Clark Power Plant-Canon City	CO.	10000 tpy 30000 tpy	$18/ton	Negotiating contracts.	Trucks: 5/day, 5 days/week
	GEC S & A (See Black Diamond)			19510	6	7	8	(see Black Diamond)			Stripping Black Diamond		
Garfield	Eastside Eastide Coal Company P.O. Box 156 Silt, CO 81652 (Louis Bendetti)	0	--	257	.4	.4	.4	Local	CO.	1000 tpy	$25/ton		
	Four Mile (See Sunlight)	35625 (1959-1975)	0	0	0	0	0				Sunlight Mine Operation		
	NuGap #3 Henry Bendetti 1117 Grand Avenue Glenwood Springs, CO 81601	5372 (1968-1975)	451	397	.4	.4	.4	Local	CO.	500-1000 tpy	$25/ton		
	Sunlight (old Four Mile) Carbon King, Ltd. 2nd and Union Lakewood, CO (Tom Young)	172790 (1901-1958)	984	1792				Local	CO.	1000 tpy			Truck

Table 9a.--(cont.)

COUNTY	MINE (Operator)	Cumulative Production thru 1975	1976 PRODUCTION (thousand tons)	1977 PRODUCTION (thousand tons)	1978 PROJECTIONS (thousand tons)	1979 PROJECTIONS (thousand tons)	1980 PROJECTIONS (thousand tons)	COAL CONTRACT AND SALES DATA: 1976 Purchaser	Shipped to	Quantity/Duration	Remarks	Future or 1/78 Status	Transportation Plans
Gunnison	Bear Bear Coal Company, Inc. Somerset, CO 81434 (Bill Bear)	2,764,718 (1932-1975)	109,226	226,220	250	250	250	Local Bullock Power Plant-Montrose Am. Smelting & Refining-Helena Pueblo Army Dept Holly Sugar Co.-Delta Kennecott Copper-McGill Fremont Dept. of Utilities	CO. CO. MONT. CO. CO. NEV. NEBR.	15,000 tpy 22,000 tpy spot 45,000 tpy thru 1977 12,000 tpy spot 4500 tpy 13 weeks 2000 t/mo thru 1977 11,000 tons	Coal strike 12/77 - 3/78 $24/ton local $15.42/delivered ton 1978 negotiating $22.25 FOB mine through 1978	ø ø ø ø	5-7 77-ton train cars/week 8-12 " " " " " 20 100-ton train cars/month 40-75 tons trucked/day; 5 days/week 10-13 77-ton train cars every 2-3 weeks
	Hawks Nest East #2 Western Slope Carbon, Inc. Somerset, CO 81434 (Dick Owens)	946,539 (1931-1970)	26,787	190,349	250	260	260	Local CF&I Negotiating contracts	CO.	10,000 tpy 260,000 tpy (terminated 12/1/77)	100,000 tpy to Cameo plant 1977-79 Limited due to adjacent fed. coal land. All contracts in negotiation #2 East closed part of 1977 for expansion work. Planned production of 400,000 tons in 1978 at slow start due to strike. #3 West closed in 1978 for at least one year-remaining life of 4-5 years.		DRGW Truck. 2 units trains/week of 40 77-ton cars.
	Hawks Nest West #3 (See Hawks Nest #2)	923,977 (1970-1975)	155,732	12,362									
	O. C. Mine #2 Henry L. Weaver P.O. Box 772 Gunnison, CO 81230	52,283 (1917-1975)	3322	3696	3-4	3-4	3-4	Local domestic and schools	CO.	3000-4000 tpy	$24.50/ton $22-24/ton		
	Peanut U.S. Energy Corp. Crested Butte, CO	0	0	0	0	0	0				not yet economical		
	Somerset U.S. Steel Corp. P.O. Box 1 Somerset, CO 81434 ("Big Miller")	16,947,684 (1903-1975)	950,156	914,552	950	950	950	U.S. Steel plant in Orem	UTAH	950,000 tpy	Coal production low due to strike 12/77-3/78.		32-38 100-ton train cars 5-6 days/week.
	Sylvester Gulch Test Adit (Arco)	1500	1500	0	0	0	0	Test adit - closed					
Jackson	Canadian Strip Sigma Mining Company & Ralph Flesch & Sons P.O. Box 782 Walden, CO 80280 (David Sigismund)	18,201 (1975 only)	20,301	148,560	80-120	80-120	80-120	Ames, Iowa (Institutions and Pekin, Ill. small industries) Stockpiled	IA. ILL.	13000 tons spot 7100 tons spot	1977 sales to Coors due to Eagle Mine closure Contract negotiation.		Truck to rail 11½ miles. (UP+BN).
	Grizzly Creek (Sunflower Energy)	65,000 (1975 only)	0	closed							1 million by 1985		
	Marr Strip #1 Kerr Coal Company P.O. Box 6 Walden, CO 80480 (William Kerr)	347,668 (1919-1975)	249,784	347,396	300	300	300	Local Henderson Mill (AMAX) Illinois	CO. CO. ILL.	2300 tpy 10,500 tpy 8 weeks 225,000 tpy spot	$25/ton $20/ton Contract negotiation.		Truck 8 25-ton trucks/week Trucked 100 miles to rail; 15 100-ton cars, 3/week
La Plata	King Coal Mine King Coal Company 4424 County Rd. 120 Hesperus, CO 81326 (John or Violet Smith)	213,001 (1939-1975)	16,770	22,570	20	20	20	Local Cumbres-Toltec RR, Durango Silverton RR Cameo power plant	CO.	12,000 tons 1250 tons 3520 tons	$25/ton Rio Algon Corp. Moab, Utah. $10/ton delivered Contract negotiation.		Truck 140 miles to Del Norte via company-owned trucking. Truck 4 25-ton trucks/week
	Peacock Peacock Coal Company Route 1, Box 201 Hesperus, CO 81326 (Sherron Stevens)	73,163 (1922-1925) (1934-1975)	100	1828	15	40-50	50-60	Local		20,000 tpy planned	Contract negotiation.		Truck 100 mi. to railhead in Creede or Ridgeway.
	Blue Flame Fidel Lobato P.O. Box 1425 Durango, CO 81301	72,590 (1938-1970)	0	0	.3-.45	.4-1	.4-1	Local	CO.		Contract negotiation.		
	Hay Gulch #3 C & F Coal Company, Inc. P.O. Box 438A, Route 1 Durango, CO 81301 (Milton Fuller)	59,503 (1933-1964)	0	0	10-25	25-50	25-50	Contract negotiation.			$22 - $30/ton Contract negotiation.		Transportation problems add to price Truck 150 miles to rail.
Las Animas	Allen CF&I Steel Corp. Weston, CO 81091 (Matheson)	14,575,722 (1951-1975)	618,867	582,257	600	600	600	CF&I - Pueblo	CO.	630,000 tpy (4000 tpd)	Coal strike - 12/77-3/78		Truck to railhead; 41 100-ton cars in 3 unit trains/week

Table 9a.--(cont.)

COUNTY	MINE (Operator)	Cumulative Production thru 1975	1976 PRODUCTION	1977 PRODUCTION	1978 PROJECTIONS (thousand tons)	1979 PROJECTIONS (thousand tons)	1980 PROJECTIONS (thousand tons)	COAL CONTRACT AND SALES DATA: 1976 Purchaser	Shipped to	Quantity/Duration	Remarks	Future or 1/78 Status	Transportation Plans
	Healey Strip Horner Coal Company Box 20218 Montclair Sta. Denver, CO 80220 (Morris Replin)	0	12,832	95,952	100-150	100-150	100-150	Local WN Clark Power Plant Colorado School for the Deaf & Blind, Colorado Springs Walsenburg Utilities power plant	CO. CO. CO. CO.	1000 tons @$25/ton 23000 tpy 2300 tons no details	Temporary closure 8/76-11/76 for reclamation. $20.65/ton delivered		Six 25-ton trucks/day; 5-6 days/week Two trucks/week Truck
	Jewell Strip (See Healey Strip) (Rapson Seam) (Walsen Seam) (Robinson Bed)	160 32886 (1901-1975) 394892	17,769	25,591	25-50	25-50	25-50	(Combined with Healey Mine)			Temporary closure 8/76-11/76 for reclamation.		
	Maxwell (See Allen Mine)	0	0	31,815	100	250	500-600	CF&I Steel-Pueblo	CO.	2000 ton/day	Coal strike 12/77-3/78 planned cap- 2000 tons/day		CW to Trinidad, DRGW to Pueblo. 41 100-ton cars in 3 unit trains/week
Mesa	CMC (old P.V., Riverview, and Roadside) P.O. Box W Palisade, CO 81526 (Wallace Brown)	391,181 (1908-1975)	57,106	300,199	350	500	500	Arizona Electric Power Co. Local	AZ. CO.	30,000 tpy 18,000 tpy $19/ton	Now shipped to Denison, AZ. $15.35/ton delivered; Az. Electric Power Co.- 500,000 tpy beginning 1977. Dependent on fed. leasing. New name - Roadside.		Truck across river to unit train.
	Cameo Cameo Mining Company P.O. Box CC Palisade, CO 81526 (Wallace Brown)	4,216,246 (1899-1969)	28	0	100	200-500	200-500	Mississippi Power Co.	MISS.	16 yrs.	Negotiating contracts.	Start up 1979 at 820,000 tpy totalling 13 million tons.	Unit train.
	McGinley No. 1 McGinley Coal & Energy 5670 E. Evans Avenue Denver, CO 80222 (Woody Keener)	4490 (1921-1970)	0	0	0	25	100-250	not yet opened		planned 25,000-100,000 tpy	No plans		Truck 15 miles to DRGW railhead.
Moffat	Trapper (Craig) Utah International, Inc. P.O. Box 187 Craig, CO 81625 (Mr. Diederich)	0	0	345,948	1000	2500	2700	Colorado Ute Electric for Craig power plant.	CO.	35 yrs at 2.2 MM avg. tpy	Craig Mine mine power plant unit #1 and #2.	Unit #3, 4 will demand 1 million tpy if built.	Truck
	Colowyo (old Red Wing Mine) Colowyo Coal Company (W.R. Grace & Hanna Mining) P.O. Box 775 Craig, CO 81625 (Ira McKeever)	3984061 (1914-1974)	0	290531	250-1500	1500	1500	Martin Drake Power Plant 3000 - 6000 tons/week starting April 1977; Local planned; up to 15 MMtpy to Drake and Nixon power plants by 1977; 1.75 MMtpy to Central Power & Light (Texas) by 1979.	CO. TEX.	20-25 years	The amt of coal leased determines a minimum production rate of 7.5 MMtpy; Only 2.5 MM has found a market. Surface is owned by Colowyo & coal by government. Contract negotiation.		Two 3000-ton unit trains/week.
	Williams Fork #1 Empire Energy Corp.	238,396	54087	0	closed	0	0				Depleted; reclaiming.		
	Williams Fork #2 Brasel & Sims Coal Co. Box 956 Craig, CO 81625			0	350,000	350,000	depletion				Opened 12-1-77. Eastern utilities.		Truck, unit train
	Williams Fork #3 Utah International, Inc. P.O. Box 187 Craig, CO 81625 (Mr. Diederich)	0	71434	closed	for preparation						Trapper Mine expansion.		Truck.
	Wise Hill #5 (new name Eagle #5) Empire Energy Corp. P.O. Box 68 Craig, CO 81625 (Peter Epp) - Amos Hicks) (Jim Zubal)	2129298 (1924-1975)	382289	447,510	600	600	600	Local for employees Martin Drake Power Plant Iowa Power & Light	CO. NEB-IOWA	312,000 tpy 180,000 tons open end	$14.70 FOB mine plus $4.87 frt.	planned 600,000 tpy production.	Truck, 30 100-ton unit train cars, 2/ week.
	Wise Hill #9 (new name Eagle #9) (See Wise Hill #5)	0	(prep) 0	0	--	--	2200	Combined with Wise Hill #5.	CO. NEB-IOWA	2,200,000 tpy production (with Wise Hill #5) by 1978.			
Montrose	Nucla Peabody Coal Company P.O. Box 638 Nucla, CO 81424 (Bud Bensen)	1,324,566 (1959-1975)	97,939	94,403	100	100	100	Local-West end school district Nucla power plant - Nucla	CO. CO.	450 tons spot 100,000 tpy	$20/ton FOB mine $17/ton delivered 172.18 acres permitted for five years.		20-25 ton trucks/day

Table 9a.--(cont.)

COUNTY	MINE (Operator)	Cumulative Production thru 1975	1976 PRODUCTION	1977 PRODUCTION	1978 PROJECTIONS (thousand tons)	1979 PROJECTIONS (thousand tons)	1980 PROJECTIONS (thousand tons)	COAL CONTRACT AND SALES DATA: 1976 Purchaser	Shipped to	Quantity/Duration	Remarks	Future or 1/78 Status	Transportation Plans
Pitkin	Bear Creek Mid-Continent Coal & Coke Co. P.O. Box 158 Carbondale, CO 81623 (John Reeves)	550,315	115,547	58,351	100	115-130	115-130	U.S. Steel Corp.-Provo Kaiser Steel- Fontana	UTAH CALIF.	550,000 tpy 400,000 tpy			Truck 4½ miles to washing plant; Truck 22 miles to rail head; 64 100-ton unit train cars, 2/week (Saturday and Sunday)
	Coal Basin (See Bear Creek Mine)	1,221,438	108,874	123,182	110	100-125	110-125	" " "	"	"			5/month
	Dutch Creek #1 (See Bear Creek Mine)	5,607,071	132,408	232,481	300	300	300	" " "	"	"			" " " " " "
	Dutch Creek #2 (See Bear Creek Mine)	742,609	268,902	208,142	270	270-320	270-320	" " "	"	"			" " " " " "
	L. S. Wood (See Bear Creek Mine)	386,123	263,109	298,405	300	300	300	" " "	"	"			" " " " " "
	Thompson Creek #1 Anschutz Coal Corp. P.O. Box 980 Carbondale, CO 81623 (Jim Morris)	1,079,166	530	7455	50	50	50	" " "	CO. CALIF. JAPAN	1-1.5 MMtpy for 20 yrs planned capacity	CF&I±4000 tpy due to strike. Negotiating Asian and California contracts.		Truck 11½ miles at Carbondale to railhead; unit train DRGW Unit train DRGW Unit train to Long Beach, Calif. loading docks.
	Thompson Creek #3 (See Thompson Creek #1)	672,206	150	8413	50	50	50	" " "		"			" " " " " "
Rio Blanco	Rienau #2 Sewanee Mining Company, Inc. P.O. Box 130 Meeker, CO 81641 (Dan Dehydarehy)		0	8836	10	20	40	Local	CO.		$26-28/ton		
Routt	Apex #2 Sunland Mining Corp. 25990 Routt County Road No.29 P.O. Box 55 Oak Creek, CO 80467 (Kenneth Henderson)	120,672 (1932-63)	14,209	10,391	20	75-100	150-250	Local	CO.	15000 tpy 5 yrs	$20/ton-$25/ton	Eastern utility sales, 1978.	Truck 6 miles to rail head at Oak Creek.
	Blazer(old Block Mine) James D. Tatum P.O. Box 103 Louisville, CO 80027	9047 (1925-1954)	0	0	0	250	250				unknown	unknown	
	Denton (Milner Coal)	28,487 (1975 only)	8257	closed	0	--	--	Local			280 acres State land	closed	
	Edna Strip and Test Pittsburgh & Midway Coal Mining Company P.O. Box 176 Oak Creek, CO 80467 (Clarence Washburn)	12,169,726 (1924-75)	1,140,198	1,094,290	1000	1000	1000	Local Ideal Basic Portland Plant-Florence Martin Drake Power Plant-Co. Spgs. Walsen Utilities-Walsenburg PSC.(Arapahoe Plant)-Denver (Cameo Plant)-Cameo W.N. Clark Plant-Canon City Ash Grove Cement-Louisville Great Western Sugar Great Western Sugar-Gering, Bayard	CO. CO. CO. CO. CO. CO. NEBR. CO. NEBR.	20,000 tpy 230,000 tpy 370,000 tpy 16,000 tpy spot 166,000 tons 1-9/76 100,000 tons 24,000 tpy spot 45,000 tpy spot 102,000 tpy spot 55,000 tpy spot	$20/ton $9/ton contract, $12.50/ton spot and $5 frt. $10/ton delivered $13/ton delivered Mine Depletion expected by 1991 - (EIS)		Truck 25 DRGW unit train 100-ton cars 2/week 30 100-ton cars 3/week Rail 45 100-ton cars/week 65 100-ton cars/week Rail Rail 1600 tons/week DRGW DRGW
	Eilts (See Meadows #1 1977) Sun Coal Co., Inc. (Glenn Wallace)	no record	0	0									
	Energy #1 Energy Fuels Corp. P.O. Box 6 Steamboat Springs, CO 80477 (Gilbert Lazer, Bob Shively)	7,730,917 (1962-75)	1,678,922	3,048,584	3000	3000	4500	PSC(Cherokee Plant)-Denver (Arapahoe Plant)-Denver Illinois Power & Light American Electric Power Company	CO. CO. ILL. ILL.	1,590,000 tpy 335,000 tpy 830,000 tpy 300,000 tpy	4 yrs $11/ton delivered $12/ton delivered Fed. coal to the S.W. of current private lease		73 100-ton unit train cars: 1 every 3 days Rail
	Energy #2 (See Energy #1)	2,023,929 (1962-75)	1,009,511	416,451				Combine with Energy Mine #1	"	"	2 yrs max.	"	" " " " " "
	Energy #3 (See Energy #1)	538,949 (1975 only)	518,881	385,520	500	500	500	" " " " "	"	"	4 yrs max.	"	" " " " " "

Table 9a.--(cont.)

COUNTY	MINE (Operator)	Cumulative Production thru 1975	1976 PRODUCTION (thousand tons)	1977 PRODUCTION (thousand tons)	1978 PROJECTIONS (thousand tons)	1979 PROJECTIONS (thousand tons)	1980 PROJECTIONS (thousand tons)	COAL CONTRACT AND SALES DATA: 1976 Purchaser	Shipped to	Quantity/Duration	Remarks	Future or 1/78 Status	Transportation Plans
	Seneca Strip Seneca Coals Ltd. (Peabody Coal Company) Drawer "D" Hayden, CO 81639 (Frank Gilbert	6,029,708 (1964-75)	1,383,508	1,291,025	1500	1500	1500	Hayden Power Plant	CO.	1,400,000 tpy 5 yrs	Expansion depends on preference right approvals of Jay Thompson property coal.		Truck to mine mouth plants, 220 trips/day 25-ton trucks
San Miguel	Elder Holland & Sons Mining P.O. Box 243 Naturita, CO 81422 (Rex Holland)	2650 (1930-1950)	0	0	8	8-10	8-10	Local	CO.			market for expansion unknown	
Weld	Eagle Imperial Coal Company 3747 Weld County Rd. No. 8 Erie, CO 80516	7,921,232 (1939-1975)	32,238	closed	0	--	--	Local Arapahoe Power Plant, Denver Adolph Coors Co., Golden	CO. CO. CO.	50,000 tpy	$25/ton	closed	Rail, DRGW
	Lincoln (See Eagle Mine)	3,440,742 (1896-1902) (1949-1974)	34,636	105,103 (closed)	closed	closed	closed	(See Eagle Mine)	CO.	"	"	closed	"
			9,461,513	11,651,654	13,126,100 to 13,357,000		21,910,200 to 22,793,800						

Table 9b.--Licenses not renewed in 1977.

COUNTY	MINE	Estimated Reserves	Reason for Closure
Delta	Coalby		Became Red Canyon Mine
	Converse		Became Orchard Valley Mine
Fremont	Corley S6A		Became Black Diamond Mine
Garfield	Fourmile		Became Sunlight Mine
Gunnison	Sylvester Gulch Test Adit		Test Closed
Jackson	Grizzley Creek		No Plans
Moffat	Williams Fork #1		Reclaimed
	Williams Fork #3		Acquired for Trapper Mine expansion
	Wise Hill #8		Burned seam. Closed.
Routt	Denton		Depleted; new mine likely adjacent in same seam outcrop.

Table 9c.--New licenses issued in 1977.

COUNTY	MINE OPERATOR ADDRESS	Cumulative Production thru 1976 short tons (ST)	Annual Production 1977 ST	1978(proj.) ST	1980(proj.) ST	Marketing Information	Quantity/Duration	Transportation
Archuleta	Martinez Strip Chimney Rock Coal Star Route 3, Box 52A Pagosa Springs, CO 81147	148 (1949-1953)	4,070	5000	25,000	Local domestic. Possible power plant market if rail transportation is made available.	planned capacity 100,000 tpy. 8 yr. life of 650,000 tons	Truck to rail-DRGW.
Delta	Blue Ribbon Sunflower Energy Corp. 770 Grant St., Ste. 100 Denver, CO	31215 (1952-1964)	16,640	50,000	50000	Local sales. Sales combined w/another mine (confidential)	planned capacity 70,000 tpy. 10 yr. life with 750,000 tons	Truck to rail or consumer.
	Tomahawk Strip Quinn Development Company (owner) 84 Montrose Drive Montrose, CO 81401 (Lyle Kyllo)	118157 (1947-1962)	24171	25,000	100,000	Local sales for 1978. Proposed out-of-state utilities.	planned capacity 250,000 tpy. 10-12 yrs. 2 million tons surface mineable.	Truck 14 miles to DRGW near Delta.
Fremont	Hastings Strip Near Florence, CO. 7010 Burnt Mill Rd. South Beulah, CO 81023 (Robert & Imogene Hastings)	0	32	2500	10,000	Local spot, negotiating contracts. Present cap. is 100 tpd.	planned capacity of 1 million tpy.	Truck.
	Newlin Creek Coal Corp. 1780 Brookside Avenue Canon City, CO 81212 (Joe Carpine)	0	1607.	7000	10,000			
Garfield*	McClane Canyon Sheridan Enterprises, Inc (owner) 8301 E. Prentice Avenue Englewood, CO 80110 (Bill Anderson)	0	47,816	0	25,000		Temporary closure.	
	Munger Canyon Black Hawk Coal Co. P.O. Box 1555 Grand Junction, CO 81501 Sheridan Enterprises, Inc. Mike Cantrell (operator)	0	20531	150,000	175,000	Utilities test burns, at 4-yr planned 1000 tpd.	1 million tons reserves. (exploration underway)	
La Plata	Coal Gulch Arness-McGriffin Coal Co. 1139 Main Avenue Durango, CO 81301 (Ken McGriffin)	0	1,250	2500	5000	Local. Contract negotiating. Power plant sales if rail transportation is built.	permit requested for 30 years at 25,000 tpy.	Transp. costs add $7/ton to price. Truck 10 mi. to Del Norte railhead
Las Animas	Delagua Strip (old Berwind) Delagua Coal Co. P.O. Box 405 Trinidad, CO 81082 (Alvin E. Wiggins) Coal: Victor Am. Fuel Co	24894926 (1892-1969)	6,700	24,000	25,000			C & S Rwy.
Routt	Meadows Strip #1 (Eilt's property) Sun Coal Company, Inc. P.O. Box 26 Milner, CO 80477 (Gregory Hoyl)		62912	240,000	250,000	Uncertain - probably in-state.	planned capacity 250,000-300,000 tpy. 4-5 yrs. Reserve 1.152 million tons	

* Spink Canyon Test licensed in 1977 closed without producing.
East Salt Creek Test " " " " " "

Useful statistics can be drawn from Table 9, as follows:

1) approximately 38.5 percent (3,641,900 tons) of the total 1976 coal production was consumed out-of-State by utilities and industry.

2) approximately 5,819,613 tons of the 9.46 million tons produced was consumed in-State.

3) approximately 65 percent of the coal produced was consumed by utilities.

4) approximately 28 percent of the coal was consumed by the steel industry.

5) miscellaneous industrial use (plant heating and processing) totalled approximately 6 percent.

6) local domestic steam utilization totalled approximately 1 %.

The projection figures given on Table 9 relate to the contract information listed for each mine. However, due to slowed coal mine expansion, the late 1977 - early 1978 coal strike, and marketing and transporation problems, many mines currently appear to have lower production rates than earlier predicted for 1978. On the other hand, certain mines have shown early in 1978 production rates that would exceed their predictions. The Colorado Geological Survey projections for Colorado coal production are:

1978- 14,985,300
1979- 17,687,000
1980- 20,747,400
1985- 32,239,000-50,839,000[1]

[1] The higher figure assumes completion by 1985 of the proposed Watkins coal gasification plant (in Adams County), which is estimated to require 15 million tons per year of Denver basin lignite as feed stock.

Coking or metallurgical-grade coal is mined from 14 mines. Their names, county locations, 1976 and 1977 production, and overburden thickness are listed on Table 10.

Table 10. Currently producing coking coal mines in Colorado (Jones and Murray, 1977).

Mine Name	County	Production (short tons)		Overburden Thickness (feet)
		1976	1977	
Bear	Gunnison	109,226	226,221	1200
Hawk's Nest East (#2)	Gunnison	26,787	190,350	1600
Hawk's Nest West (#3)	Gunnison	155,732	12,363	1600-2000
Somerset	Gunnison	950,156	914,552	200-2000
Allen	Las Animas	618,867	582,257	400-1100
Maxwell (New)	Las Animas	0	31,815	400-1400
Coal Basin	Pitkin	108,874	123,182	100-3000
Bear Creek	Pitkin	115,547	58,352	100-3000
Dutch Creek #1	Pitkin	132,408	232,481	100-2500
Dutch Creek #2	Pitkin	268,902	208,142	100-3000
L.S. Wood	Pitkin	263,109	298,405	100-3000
Thompson Creek #1 (New)	Pitkin	530	7,455	400-1300
Thompson Creek #3 (New)	Pitkin	150	8,413	400-1300
	Total	2,749,988	2,893,988	

According to Jones and Murray (1977), the total production represented by these mines, all of which have greater than 1,000 ft. of overburden, amounts to 29 percent of the State's total 1976 production of 9,461,513 tons. Over 32 percent of the deep-mined coking coal (or 888,840 tons), which represents approximately 9 percent of the total coal production of the State in 1976, came from mines with from 2,000 to nearly 3,000 ft. of overburden. It should be noted that the 1977 production figure no doubt would have been somewhat higher had there not been a labor strike in some of the larger mines in late 1977-early 1978.

Table 11 shows the productivity for each producing mine in 1976. The average productivity for the 16 productive surface mines was 56.8 tons/worker/day, whereas the average for the productive underground mines was 8.8 tons/worker/day. Overall productivity was calculated at 19.4 tons/worker/day.[1] As a rule, Western mines are twice as productive per worker-day as Eastern mines (Walsh, 1973; see also Lowrie, 1977, and Moskow, 1977). The National average for 1976 was 13.6, or 26 tons/worker/day when surface-mined and 8.5 tons/worker/day when underground-mined (Lowrie, 1977). Productivity had been gradually increasing nationwide, due to improved technology and increased surface mining, especially in the West. However, since 1969, underground mining productivity has been decreasing due to stricter requirements on mine health and safety and manpower training (Averitt, 1974; see also Moskow, 1977).

Table 11. Coal mine employment and productivity in 1976 (Colorado Division of Mines and Colorado Geological Survey)

Mine	Average No. of Workers	No. of Working Days	No. of Worker-days	Productivity (tons/worker/day)
Coalby #2	4	15 *	60	63/60 = 1.1
Orchard Valley	61	198	12,078	13,960/12,078= 1.2
Red Canon #1	1	25 *	25	0/25 N/A**
Black Diamond Strip	8	208	1,664	4,4851/1,664= 27.0
Cedar Canon Strip	2	124	248	2,152/248 = 8.7
Corley Strip	6	47 *	282	3,253/282 = 11.5
Twin Pines	9	272	2,448	40,700/2,448 = 16.7
Nu-Gap #3	1	240	240	441/240 = 1.8
Sunlight	2	202	404	984/404 = 2.4
Bear	40	164	6,560	109,226/6,560 = 16.7
Hawk's Nest East #2	37	238	8,806	26,737/8,806 = 16.7
Hawk's Nest West #3	76	238	18,088	155,732/18,088 = 8.6
Somerset	273	251	68,523	950,156/68,523= 13.9
Sylvester Gulch	7	32*	224	1,500/224= 6.7
Canadian Strip	5	288	1,440	20,301/1,440= 14.1
Marr Strip #1	35	240	8,400	249,784/8,400= 29.7
Blue Flame	2	30*	60	0/60= N/A
King Coal	18	276	4,968	16,770/4,968= 3.4
Peacock	1	49*	49	100/49= 2.0
Allen	497	241	119,777	618,867/119,777= 5.2
Healey Strip	4	106	424	12,832/424= 30.3
Jewell Strip	3	126	378	17,769/378= 46.9
CMC	61	260	15,860	57,106/15,860= 3.6
Cameo	3	12*	36	28/36= 0.8**
Colowyo Strip	54	28*	1,512	0/1,512= N/A**
Trapper Strip	78	258	20,124	0/20,124= N/A**
Wms. Fork #1 Strip	25	20*	500	54,087/500=108.2
Wms. Fork #3 Strip	24	132	3,168	70,634/3,168= 22.3

[1] 9,461,513 short tons of coal mined divided by 487,691 worker-days of producing mines.

Wise Hill #5	72	240	17,280	382,289/17,280=	22.1
Nucla Strip	24	302	7,248	97,939/7,248=	13.5
Bear Creek	67	254	17,018	115,547/17,018=	6.8
Coal Basin	50	254	12,700	108,874/12,700=	8.6
Dutch Creek #1	79	258	20,382	132,408/20,382=	6.5
Dutch Creek #2	72	254	18,288	268,902/18,288=	14.7
Thompson Creek #1	35	255	8,925	530/8,925=	0.06**
Thompson Creek #3	12	252	3,024	150/3,024=	0.05**
L. S. Wood	70	254	17,780	263,109/17,780=	14.8
Reinau #2	5	20*	100	0/100	N/A**
Apex #2	7	276	1,932	14,209/1,932=	7.4
Blazer	2	50*	100	0/100=	N/A
Denton Strip	9	32*	288	8,257/288=	28.7
Edna Strip	74	219	16,206	1,140,198/16,206=	70.4
Eilt's Property	3	160	480	0/488=	N/A**
Energy Strip #1	157	250	39,250	1,478,922/39,250=	37.7
Energy Strip #2	25	250	6,250	1,009,511/6,250=	161.5
Energy Strip #3	27	250	6,750	518,881/6,750=	76.9
Seneca Strip #2	56	270	15,120	1,383,508/15,120=	91.5
Eagle	21	197	4,137	32,238/4,137=	7.8
Lincoln	50	104	5,200	34,637/5,200=	6.7
TOTALS	2,259	8,934	515,869	9,461,513 tons	

*50 or less working days in 1976.
**Mines in non-productive preparation.

To cope with anticipated shortage of trained miners, coal companies and the Colorado Mining Association are evaluating school programs for classes in coal mining and related trades. Planned training facilities include additions to the Delta-Montrose Technical School and the Trinidad Junior College (Colorado Division of Mines).

PART III. COAL DEVELOPMENT, LEASING, TAXATION, TRANSPORTATION, AND UTILIZATION

DEMAND FOR WESTERN COAL

The rapid growth of coal production in the Western states has been the result of their capturing a larger part of the electricity generation market (Walsh, 1974). The reason for the increase in demand for Western coal is that it has lower sulfur content than Eastern coal and, therefore, is better compliance coal with respect to the Clean Air Act of 1970 (Federal Energy Administration, 1976; see also Lowrie, 1977; Averitt, 1974; Moskow, 1976; GAO, 1977; and Speltz, 1976, p. 3).

Factors affecting the development of Colorado coal include the following (Moskow, 1976, p. 7-9; see also GAO, 1977; Lowrie, 1977; and Tyner, 1977, p. 2-3):

1) intricacies of the leasing and permitting systems on public lands
2) changes in Federal coal leasing policies
3) changes in tax structure
4) market demands
5) National and State air pollution standards
6) National policies on best available control technologies (BACT)
7) National policies on coal conversion and coal slurry pipelines
8) changes in coal conversion technologies
9) transportation investments
10) changes in underground mining technologies
11) checkerboard and differential surface-subsurface land and coal rights ownership
12) potential conflicts with development of oil and gas, oil shale, uranium, etc.

Many of Colorado's unique problems with coal development are related to the State's geography. The rugged terrain in much of the State hinders the transportation of coal. Furthermore, most of Colorado's coal resources are mineable only by underground methods. Additionally, land and mineral ownership is very checkerboarded, necessitating private, State, and Federal coordination to create economically mineable coal tracts (Tyner, 1977, p. iv), referred to in the FCLAA 1975 (rev. 1976) as logical mining units (refer to p. 44 for a discussion of this Act).

Availability of logical mining units (LMU's), as defined in recent Federal legislation, is also critical to the development of many new coal mines in the State.

The Department of the Interior (reflecting the 1920 Mineral Leasing Act) limited the size of an area to be leased to a maximum of 2560 acres unless the requirements of the 1976 Mineral Leasing Act Amendments were met. The 1976 Amendments declare that:

> The Secretary, upon determining the maximum economic recovery of the coal..., may approve the consolidation of coal leases into a logical mining unit. Such consolidation may only take place after a public hearing, if requested by any person whose interest is or may be adversely affected. A logical mining unit is an area of land in which the coal resources can be developed in an efficient, economical, and orderly manner as a unit with due regard to conservation of coal reserves and other resources. A logical mining unit may consist of one or more Federal leaseholds, and may include intervening or adjacent lands in which the United States does not own the coal resources, but all the lands in a logical mining unit must be under the effective control of a single operator, be able to be developed and operated as a single operation and be contiguous.

Colorado's coal industry is experiencing increasing demands from electrical power plants. Their demands for long-term bulk quantity coal contracts are best being supplied by the large surface mines. This situation has generated some speculation that the present LMU limitation of 2,560 acres may need to be less limiting (Tyner, 1977).

FEDERAL COAL IN COLORADO

Preliminary compilations by the U.S. Bureau of Land Management (BLM) indicate that at least half of Colorado's coal resources lie on privately owned land. The rights to the remainder appear to be split more or less equally between State and Federal ownership. Some 8.8 million acres of coal rights in the State are owned by the Federal government; on about 72 percent of this land, the Federal government controls both the coal and the surface rights.

Federal coal lands cannot be claimed under the Mining Law of 1872; therefore, all Federal coal land is administered by the BLM, and all mining operations are supervised by the U.S. Geological Survey Conservation Division under provisions of the Mineral Leasing Act of 1920. The BLM estimates that 60 billion tons of coal resources are under Federal ownership in Colorado. Of this amount, approximately 6.4 billion tons (over 10%) are surface-mineable. Recoverable coal reserves in Colorado held under Federal lease are estimated to be 1,650 MM tons (273 MM tons strippable). Recoverable coal reserves held under Federal Preference Rights Coal Lease Applications are estimated at 890 MM tons. From April 23, 1925, when the first Federal lease was issued, to the June 6, 1973 Federal coal leasing moratorium, the U.S. Government issued 56 competitive bid leases, aggregating 44,234 acres, and 56 preferential rights leases (resulting from prospecting permits) aggregating 77,631 acres (Speltz, 1976, p. 11).

Historically, only 5 percent of the State's total coal production has come from Federal leases, and less than 4 percent from State-owned lands. However, in 1976 30 percent of Colorado's coal was obtained from leased Federal lands and approximately two-thirds from privately held lands, while coal production from the State lands remained at 5 percent of the total.

Twenty-two mines licensed in 1977, with planned recovery of over 500 million short tons, are either partially or entirely on Federal lands (see Part VII). Three test sites involving large leaseholds are totally on Federal lands; however, no production or reserve estimates are available for these tracts.

With such a large percentage of Colorado's coal resources under Federal control, the relationship of the Federal government to the State needs to be discussed.

The Federal government explained its expected relationship with the States through the Federal Coal Leasing Amendment Act of 1975, Rev. 1976 (the most recent amendment to the Mineral Leasing Act of 1920), which ordered royalty rate minimums, land use planning criteria prior to coal leasing, diligent and continuous development of coal leases, redistribution of royalty apportionments, competitive coal leasing only, and abolishment of preference rights leasing.

Another significant Federal law concerning the management of coal development is the Federal Land Planning and Management Act of 1976. This law determines public land management policies and addresses State participation and comprehensive land-use planning. There is an entire section in this Act that is devoted to royalty rates and loans to the States based upon royalty revenues.

The State's Share of Federal Coal Lease Revenues

The Mineral Leasing Act of 1920 designates that royalties collected by the Federal government for coal produced on leased Federal coal land be shared with the State governments. As a result, Colorado to date has received the following revenues (Colorado Department of Local Affairs, 1977):

	FY 1975	Calendar Year 1976	Calendar Year 1977
Colorado Fed. tonnage	--	2,652,092 ST	4,021,197 ST
(Surface)	--	(1,942,505 ST)	(2,761,978 ST)
(Underground)	--	(709,587 ST)	(1,259,219 ST)
Colorado revenues[1]	$158,957	$387,770	$422,542
(Surface)	--	($318,387)	($281,574)
(Underground)	--	($ 69,382)	($140,968)

[1]Federal royalties allocated to the State

Royalty rates applied to coal production have increased over the years. According to the U.S. Geological Survey (1977), the 1976 Federal revenue was collected at an average of 22 cents/ton, or 3.2 percent of the nationally averaged price of $6.82 per ton. Coal produced from Federal land in Colorado, however, was assessed at an average of 15-17.5 cents per ton, based on an average selling price of $15.26 per ton (see price discussion on p. 62). The Federal government collected a total of $1,034,053 in 1976, of which Colorado was allocated 37.5 percent, or $387,770. The State's revenue was then allocated to public schools (25%), conservation (10%), the socioeconomic impact fund (15%), and to the counties (50%) from which the coal had been mined as mandated by legislation.

The Federal Coal Leasing Amendment Act of 1975, Rev. 1976 (FCLAA of 1975, Rev. 1976) changes the rate for royalties, allowing a very significant increase in revenues on any leases issued thereafter. Effective January 1, 1977, royalties are collectable at the minimum rate of 8 percent of the value of underground-mined coal and 12.5 percent of the value of surface-mined coal; the value of the coal is to be determined for each mine. The State's share of these revenues was also changed; instead of receiving 37.5 percent of the revenues, the States now receive 50 percent. The additional 12.5 percent turned over to the States has been designated by law to be placed in facilities and services planning, construction, and maintenance as needed by growth-impacted communities. The revenues shown above for Colorado in 1977 reflect only the increase in the State's share and not the increase in royalty rates, because no new Federal leases were issued in 1977. According to the U.S. Geological Survey (personal commun., April 1978), Colorado Westmoreland's recent short term lease acquisition in February 1978 (in Delta County) is the first Federal coal lease in Colorado to use the 8 percent of coal-value royalty fee. Energy Fuels (in Routt County) will probably be the first surface mine to acquire leases under the new provisions, which will carry the 12.5 percent royalty fee.

Federal Coal Leases in Colorado

Although there are currently 113 active Federal coal leases totalling 122,000 acres (and 26 competitive lease applications on 62,000 acres), over 60% of these have never produced coal. Most of these were obtained during the 1960's at a time of speculation in coal leases. Major Federal leaseholders as of 1976 are the following companies (Kip Hinton, U.S. Bureau of Land Management, personal commun., 1976):

Kemmerer Coal (approximately 15,900 acres)
Industrial Resources (14,900)
Peabody Coal (14,200)
Consolidation Coal (10,000)
Utah International (8,000)
U.S. Steel (8,000)

Only the productive leases pay royalty fees to the Federal government. The non-productive leases pay only annual rental fees. When leases reach the 20-year automatic renewal date, the most current royalty rate in effect is applied to the renewal agreement for another 20-year period (J. DiClementi, U.S. Geological Survey, personal commun., 1978). If no coal is produced from the land, only the rental fees need to be paid.

A more currently significant piece of legislation is the diligent production clause of the FCLAA (Rev. 1976), which states that all leases issued before August 4, 1976, will be required to produce commercial quantities of coal before June 1, 1986. For leases issued after August 4, 1976, the same requirement must be met by the end of the tenth year from the effective data of the lease (U.S. Bureau of Land Management, Denver, Notice to Federal Coal Lessees, September 9, 1977).

The Department of the Interior's 1971 moratorium (modified in 1973 to maintain existing operations) on mineral prospecting permits and on leasing has affected Federal leases in Colorado; because the royalty rate changes could not be agreed upon, renewals of 20-year-old leases were delayed. Between the time of the moratorium and the decisive FCLAA of 1975, Rev. 1976, several Federal leases in Colorado came due for renewal. They have not yet been renewed. The two producing leases are still paying royalties at the old rate, and the non-producing leases are continuing to pay only the annual rentals. The following

companies own leases that await renewal (J. DiClementi, U.S. Geological Survey, personal commun., 1978)

Active Leases

Western Slope Carbon (2 active leases)	819 acs. 190 acs.
Atlantic Richfield (1 active lease)	1,382 acs.

Inactive Leases

Wiggins & Welch (renewal due 1972) (no mine plan)	121 acs.
Sewanee Mining Co. (renewal due 1974) (adjacent to producing lease w/mine plan)	165 acs.
CF & I Steel (renewal due 1972) (near State leased land)	962 acs.
GEX Colorado Co. (renewal due 1974) (no mine plan)	2,560 acs.
Reliable Coal Mining Co.	513 acs.
Franklin Real Estate (renewal due 1976) (no mine plan)	635 acs.

Completion of the new Federal coal leasing policy review by the Department of the Interior's coal policy review group is targeted for the early 1980's (U.S.D.I. memorandum to Colorado Department of Natural Resources, April 1978). Until that time, the Department of Energy is committed to resume whatever Federal coal leasing is essential to meet the Administration's production goals and to consolidate checkerboarded tracts that now make many Federal coal reserves impractical to mine, according to the FCLAA 1976 Revision.

Full resumption of Federal coal leasing is planned for mid-1980, pending completion of the review. The leasing will then be subject to the new regulations enacted as a result of the policy review.

Seven of the current 20 proposed mines are partially on Federal land. Their total estimated recoverable reserves of coal is 253 million tons. Three Federal leased coal tracts will need Federal land for future expansion, and one proposed mine is dependent upon Federal land for its entire site (see the Coal Mine Data Sheets in Part VII).

STATE COAL LANDS

As of June 1978, approximately 145-150 State coal leases are in force, totalling some 282,000 acres (224,187 acres in FY 1976-1977).

From 1908 to July 1, 1977, over 22.5 million short tons of coal were produced from State lands. During FY 1976-1977, 868,678 short tons of coal were produced from State lands (Colorado State Board of Land Commissioners, 1978, p. 14); and both production and income received from State coal leases are expected to be significantly higher when the FY 1977-1978 statistics are compiled. To July 1, 1977 more than $4.6 million in royalties, rentals, and bonuses has been paid to the State Land Board by coal lessees.

During FY 1976-1977, $320,009 in cash receipts were received by the State Land Board--$145,570 from annual rentals of coal leases and $175,439 in royalties from coal production (no lease bonus money was received that year). Of the rentals, $142,238 was allocated to the Public School Income Fund and $3,332 to the Colorado State University Income Fund; all of the coal royalties went to the Public School Permanent Fund (Colorado State Board of Land Commissioners, 1978).

State Coal Lands Located Within Coal-Bearing Regions

An estimated ± 831,000 acres of State leases are believed to be underlain by coal beds of highly varying thickness and quality, and at depths ranging from the surface to in excess of 6,000 ft, based on a preliminary and unofficial study made in 1975 by Thomas E. Bretz, Minerals Director, State Land Board. At the present time (June 1978), approximately one-third of this land is under lease to both companies and individuals. On the basis of the very incomplete coal resource data available to the public sector, less than 18 percent of the State-owned coal lands (about 149,000 acres) are believed to be underlain by coal that is potentially surface-mineable. Of this, approximately 40 percent is now under lease. Of the potentially underground-minable coal lands, perhaps 25-30 percent currently are leased. It should be emphasized, however, that the coal resources located beneath some of the State lands may be too deep ever to be mined using conventional technology and assuming forseeable economic factors.

The following tabulation is based upon information compiled by T. E. Bretz and applies only to those counties that contain in excess of 10,000 acres of State lands within the coal-bearing regions.

COUNTY	ESTIMATED NO. ACRES LOCATED WITHIN COAL REGION	% STATE ACREAGE EST. TO BE LEASED
1. Weld	160,000±	3±
2. Moffat	142,700±	32±
3. Elbert	118,400±	41±
4. Routt	60,200±	98±
5. Jackson	52,500±	33±
6. Arapahoe	42,900±	5±
7. Montezuma	36,500±	13±
8. Adams	36,500±	9±
9. El Paso	33,900±	18±
10. San Miguel	25,600±	3±
11. La Plata	20,500±	12±
12. Las Animas	19,200±	92±
13. Douglas	17,300±	none
14. Huerfano	16,900±	70±
15. Larimer	12,800±(?)	50±(?)
16. Dolores	10,600±	none

It should be emphasized that the above data are not necessarily up-to-date insofar as the estimated percentage of State coal lands under lease in each county is concerned. However, these data do give a relative order of magnitude as regards the percentage of available State land that has been leased for the purpose of coal evaluation in each of these 16 counties--from none in Dolores and Douglas Counties to over 90 percent in Las Animas and Routt Counties, the latter two accounting for over 40 percent of all the coal produced to date in Colorado.

COAL MINE DEVELOPMENT

The FCLAA of 1975, Rev. 1976, is the major Federal coal policy enabling act. Other Federal laws have been enacted since 1970 which also affect the coal mining development of Colorado. Coal mine developers, as they design their mine plans, must be cognizant of the following Federal laws:

* - The National Environmental Policy Act of 1969
* - The Clean Air Act of 1970 and Amendments of 1977
- The Clean Water Act
- The Clean Water Act Amendments
* - The Federal Coal Leasing Amendments Act of 1975 (Rev. 8-4-76) amending the Mineral Leasing Act of 1920
* - The Surface Mining Control and Reclamation Act of 1977
- The Critical and Endangered Species Act
- The Safe Water Drinking Act of 1974
- The Historic Preservation Act
- The Solid Waste Disposal Act of 1971
- The Federal Water Pollution Control Act Amendments of 1972
- The Mine Safety and Health Act
- The Mine Safety and Health Act Amendments of 1977
- The Department of Energy Organization Act
- The Federal Land Policy and Management Act of 1976 (BLM Organic Act)

The (*) indicates those laws which have had critical effects on coal development in Colorado.

Lead time now required to open new mines ranges from 1 to 15 years (GAO, 1977, p. viii, 4.10-4.12; see also Tyner, 1977, p. 78 and U.S. FEA, 1976, p. 28). One can appreciate the length of time needed considering Federal policy uncertainty, market unpredictability, and the following list of mine development processes (Jones, J., 1977, p. 132 - 138):

I. Assembly of a coal package
   A. Lease acquisition
   B. Drilling Program Development
   C. Surface Drilling Rights Acquisition
   D. Drilling, Sampling, Logging, Analysis
   E. Determination of Commercial Quantities Present
   F. Drilling on Closer Centers
   G. Sampling Logging Analysis
   H. Surface Acquisition

II. Market Development
   A. Market Survey
   B. Potential Customer Identification
   C. Letter of Intent to Develop and Supply
   D. Contract Negotiation

III. Environmental Related Studies
   A. Initial Reconaissance
   B. Scope of Work Development
   C. Consultant Selection
   D. Implementation
   E. Environmental Impact Report

IV. Preliminary Design, Machine Ordering

V. NEPA Process (EIS, CEQ Filing, Mining and/or Reclamation Plan Approval)

VI. Permits (generally 15-20)
   A. State Water Well & Rights Appropriation Permits
   B. State Special Use Permit - such as a reservoir
   C. State Mining Permit
   D. State Industrial Siting
   E. Federal NPDES Permit
   F. Federal Forest Service Special Land Use Permit

VII. Design and Construction
   A. Preliminary Design & Estimation
   B. Material Ordering and Contracting
   C. Water Well Development
   D. Access Roads and Site Preparation
   E. RR Construction
   F. Power Supply Installation
   G. Facilities and Coal Handling Construction
   H. Warehouse Building & Yards
   I. Coal Preparation & Loading Facilities Construction
   J. Overland Conveyor/Construction

VIII. Mining Preparation - equipment & manpower set-up

IX. Production Build-up

X. Full Production

XI. On-going Reclamation

With surface mines, reclamation procedures are on-going as mining progresses. The reclamation activities include overburden handling and revegetation, and possibly irrigation. Underground mine reclamation activities include mitigation of subsidence problems, acid water drainage from mines, disposal of waste materials mined with the coal, and controlling or extinguishing coal fires. The Federal surface mine reclamation legislation of December 1977 established strict rules and regulations. Colorado is currently attempting to strengthen its reclamation legislation to comply with the Federal law.

The overall effects of coal development and usage pose challenges in environmental considerations and mining and industrial engineering, as well as for market development, policy-making, and taxation. The unique transportation facilities, social structures, economics, tax structures, water allocation, and agricultural conflicts in Colorado pose special problems that demand innovative solutions.

A major social cost of coal development consists of its social and economic impact on rural communities in the vicinity of the mines. Colorado towns currently undergoing direct, major, and unique impacts include Craig, Hayden, and Paonia. Interviews with spokesmen from these towns reveal a willingness to manage and a desire to benefit from the coal development.[1] Sources of impact funds mentioned included industry, Economic Development Administration, Department of Local Affairs impact funds, and Federal Mineral Leasing funds. Table 12 lists the various sources of financial aid available to communities (Colorado Department of Local Affairs, Office of Socio-Economic Impact, 1976, p. 23-33). The information shown on Table 12 is maintained up-to-date at the Federal Assistance Programs Retrieval Systems (FAPRS) office at Colorado State University in Fort Collins.[2] Computer print-outs of special request information are available at nominal cost. The following categories of assistance are listed in the FAPRS office: business and industrial development, community facilities, education, employment, health, housing, planning and technical assistance, and social services.

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[1] Jim Cheney, Paonia City Manager; Donald Cooper, Clerk and Treasurer for Craig; and Mike Rock, Hayden City Manager.

[2] This system was developed by the Rural Development Service, U.S. Department of Agriculture, to assist rural community leaders in identifying Federal programs that might be responsive to the specific needs of their communities. The telephone number of the FAPRS office at CSU is (303) 491-5706.

Table 12.--State financial assistance programs available to energy-impacted communities.

SERVICE/PROGRAM	COMMENTS	AGENCY
ART AND RECREATION		
1. Project grants (National Endowment for the Arts SB140, 1967) to bring art activities to local communities. Emphasis is to serve new, isolated or underserved audiences. $333,148 awarded 1974-75.	Non-profit individuals or groups are eligible. 50% match is required.	Department of Higher Education, Arts and Humanities Council.
2. Community Development Program (National Endowment for the Arts SB140 1967) to encourage communities to identify art-related needs, design and implement programs to meet needs. Emphasis is on cultural development of whole communities $24,143 expended in 1975-76. $39,529 estimated in 1976-77.	Non-profit local agencies are eligible.	Same as above.
3. Artists-In-The-School and Communities Program (National Endowment for the Arts SB140 1967) to develop and enhance resident's appreciation of art/artists. $104,447 estimated 1976-77.	Program sponsors pay fee for costs of artists' residencies. Schools, non-profit agencies are eligible.	Same as above.
4. Chautaugua Touring Program (National Endowment for the Arts SB140, 1967) to bring quality art activity to smaller communities and stimulate that activity over the long term. $60,000 estimated in 1976-77.		Same as above.
5. Project grants (National Land and Water Conservation Act, 1965) to acquire land or facilities for outdoor recreation areas. $19 million expended since 1965 for 600 projects ranging from $800,000 to $1 million.	Division reimburses up to 50% of total cost after completion of the project.	Department of Natural Resources, Parks and Outdoor Recreation.
EDUCATION		
1. Formula grants (CRS 1973, 22-51-101)* to provide adequate transportation for elementary/secondary students. Funds appropriated yearly by the General Assembly. 1975-76, $12 million appropriated.	School districts reimbursed for approved expenditures for previous year.	Department of Education Management Services
2. Formula grants (CRS 1973, 22-51-101) to maintain adequate service level at small attendance centers. Funds disbursed yearly. 1976-77 $3 million estimated.		Same as above
* Authorization, Colorado Revised Statutes, 1973.		

Table 12.--(cont.)

SERVICE/PROGRAM	COMMENTS	AGENCY
EDUCATION (Continued)		
3. Project grants (CRS 1973, 24-90-108 (1)(b)) to maintain adequate service level during financial emergency. $150,000 estimated funding for 1976-77.	No matching requirements.	Department of Education Management Services
4. Formula grants (CRS 1973, 24-90-108 (1)(b)) to provide cooperative inter-library service and equipment. $651,000 estimated funding for 1976-77.	No matching requirements.	Office of Library Service
5. Formula grants (CRS 1973, 24-90-108 (1)(b)) to improve library service in counties whose per capita income or population is too low to support minimum standards of library services. $125,000 appropriated for 17 eligible counties in 1977.	Local match of 33 1/3% for counties where per capita income is up to 75% of state average.	Office of Library Service
6. Project grants (Title 1, Higher Education Act, 1965) to solve current community problems (for example: environmental quality, land use, community development) via special education programs consultations and technical assistance. $141,000 estimated funding for 1977.	Institutions of higher education and cooperating local governments are eligible. 33 1/3% match required. Funds disbursed on reimbursement basis.	Department of Higher Education, Commission of Higher Education
7. Project grants (CRS 1973, 23-60-104 (1)) to encourage and support vocational education training and research with emphasis on practical or applied aspects of vocational education $111,000 estimated funding in 1976-77.	10% cash or in-kind match must be from local sources.	Division of Occupational Education
FIRE PREVENTION/LAW ENFORCEMENT		
1. Project grants (Crime Control Act, 1973) to improve criminal justice by crime reduction and more effective functioning of criminal justice system. Projects must be consistent with state plan which is basis of funding. $6.7 million appropriated for 1975-76. Same funding expected for 1976-77.	Local governments, COGS, non-profit agencies are eligible. Money disbursed in accordance with LEAA regulations, which give priority to high crime areas. Matching requirements - 1st year 10% cash match, 2nd year - 25%, 3rd year 50%.	Department of Local Affairs Division of Criminal Justice
2. Project grants (Title IV, Rural Development Act, 1972) to organize train and equip fire fighters especially in rural areas. $64,000 allocated in 1975-76.	Rural areas with population of 10,000 or less are eligible. 50% local cash match required. Funds disbursed on a reimbursement basis.	Department of Higher Education, Colorado State Forest Service (1-482-8185)

Table 12.--(cont.)

SERVICE/PROGRAM	COMMENTS	AGENCY
GOVERNMENT ADMINISTRATION/PLANNING		
1. Formula grants (24-32-111, CRS 1973) to identify and designate matters of state interest within land use plan: also for administration of land use interests within approved local work plan. General Assembly appropriated $1.6 million in 1975-76. $25,000 grants to 63 counties. 1976-77 awards not to exceed $26,750 per county.	Only counties are eligible.	Department of Local Affairs Division of Local Government
2. Supplemental project grants (24-32-111, CRS 1973) for planning to cities and counties that are participating in identification and designation of land use matters of state interest. $250,000 appropriated for 1976-77.	Cities, counties and COGS are eligible. 50% local cash and in-kind match required.	Division of Planning
3. Project grants (Housing Act, 1954) for "701" comprehensive planning and management to improve capability to develop goals, allocate resources and manage programs. Funds used to build and strengthen government institutions and regional structures - develop and implement comprehensive plans. Pass through funds from H.U.D. $311,600 awarded 1976-77. Average grant $26,000.	Only regional councils of governments are eligible. Limited to programs that meet land use and housing requirements of Housing Community Development Act, '74. 33 1/3% local match required, cash or in-kind. One year funding with limited extensions.	Same as above.
4. Project grants (Title II & III, Intergovernmental Personnel Act, 1970) to improve personnel administration via employee training and government service fellowships. $68,611 awarded 1976-77. Average grant $8,000.	State agencies and local governments are eligible. Preference given to multi-jurisdictional projects. 50% cash or in-kind match required.	Department of Personnel Intergovernmental Service Division
5. Project grants and loan (Mineral Land Leasing Act 1920) from state Oil Shale Trust Fund to mitigate impacts of oil shale development and production. $15 million thus far appropriated by the Joint Budget Committee on a project-by-project basis.	Awarded to schools and roads for oil shale related impacts only. Joint Budget Committee may require matching funds.	Socio-Economic Impact Office (Governor's Office)
6. Project grants & loans (interest from Oil Shale Trust Fund) to mitigate social and economic impacts of energy development. $3.5 million awarded in 1975-76.	Joint Budget Committee appropriated on a case-by-case basis.	Socio-Economic Impact Office

Table 12.--(cont.)

SERVICE/PROGRAM	COMMENTS	AGENCY
HEALTH AND HOSPITALS		
1. Project grants (Community Mental Health Centers Amendments of 1975) to prevent and control alcoholism and drug abuse via community based programs. $1.8 million estimated funding in 1977.	Local governments, public and private non-profit organizations are eligible. Programs supported by these funds must meet standards by providing certain services. No new funds, for continuation support only.	Department of Health, Alcohol & Drug Abuse (388-6111)
2. Project grants (Community Mental Health Amendments, 1975) for drug abuse community services programs to treat and rehabilitate users via community based programs. $263,000 estimated funding 1977.	Grants awarded on incidence rate of narcotic addition and/or drug abuse. Providing organization must meet certain standards.	Same as above
3. Project grants (12-22-301) to interrupt and reduce venereal disease. $547,000 estimated funding for 1976-77. (CRS 1973)	No matching requirements. Funds usually distributed on reimbursement basis.	Disease Control Section
4. Project grants (Title 5, Social Services Act) to promote, develop and provide comprehensive health services to mothers and children, especially low income persons. $6.3 million estimated funding 1976-77.	Local health departments and agencies providing health services are eligible. Local cash match required but determined on individual basis. Funds usually disbursed on reimbursement basis.	Family Health Services Division
5. Project grants and loans (National Hospital Survey and Construction Act)to develop high quality,readily available health care facilities. Funds used for construction and re-modeling, architect's fees, health care equipment. 1975-76, $4 million expended. $2 million estimated for 1976-77.	Public and non-profit public health care organizations are eligible. Grants not to exceed 50% of total project cost. Loans not to exceed 90%. Local matching requirements individually determined.	Medical Care Licensing and Certification
HOUSING		
1. Project grants (Colorado Housing Act, 1970) to rehabilitate, construct and acquire low income housing that is managed on a non-profit basis. Funds can be used for development, planning and administration costs. Grants range from $500 to $7,000 per housing unit. 90 local projects of 2,370 year round housing units rehabilitated. State grant investments of $4.7 million has triggered private and non-state cash investment of $13 million.	Local governments and non-profit public and private agencies are eligible. 50% non-state cash match is required.	Department of Local Affairs Division of Housing

Table 12.--(cont.)

SERVICE/PROGRAM	COMMENTS	AGENCY
HOUSING (Continued)		
2. Loans (29-4-70, CRS 1973) to provide construction and permanent loans for multi-family housing; single family home purchase loans at below market interest rates aimed primarily at low and moderate income persons. Authority assists in subsidizing rents for tenants under Section 8 of the Federal Housing Assistance Payments Program. Also lends money to lenders throughout the state to make low interest rate mortgage loans for single family housing. $75 million in revenue bonds sold to finance housing. $47.5 million for single family housing through Loans to Lenders Program, $31.5 million expended to finance multi-family housing.	Non-profit housing sponsors and authorities, developers and builders are eligible. CHFA may provide loans of up to 90% of total project cost.	Colorado Housing Finance Authority
SOCIAL SERVICES		
1. Project grants (Title III, Older Americans Act) for planning, coordinating of services for low income and/or minority elderly, community development projects and model projects. $1.1 million allocated for 91 projects in 1976-77.	Non-profit public or private agencies are eligible. 10% local match required (Does not include provision housing).	Department of Social Service Division of Services for the Aging
2. Project grants and donation of property and goods (Older Americans Act of 1965) to provide hot meals at least once a day, five days a week to persons over 60. $1.8 million estimated funding 1977-78.	25% match required. Up to 40% of local match must be in-kind, remainder cash.	Same as above
3. Project grants (Rehabilitation Act, 1973) to establish vocational rehabilitation facilities for mentally and/or physically handicapped. 1975-76, 20 projects funded. $350,000 estimated funding for 1976-77.	Only public rehabilitation agencies are eligible. 20% cash match required for facilities. Division of Vocational Rehabilitation approves applications.	Division of Vocational Rehabilitation, DHEW Administers
4. Direct payments for specific use (27-1-101, CRS 1973) to establish community based groups or foster homes to decrease institutionalization. $9.4 million estimated funding 1976-77.	Public and private groups or foster homes licensed by state are eligible. Per diem rate of $17 is average payment for length of youth's placement.	Department of Institutions Division of Youth Services

Table 12.--(cont.)

SERVICE/PROGRAM	COMMENTS	AGENCY
TRANSPORTATION		
1. Project grants (Urban Mass Transportation Act, 1964) to meet transportation needs of handicapped and elderly for purchase of equipment. $249,000 estimated funding for 1977.	Local governments, council of governments, planning commissions and private non-profit agencies are eligible. 20% local cash match required.	Department of Highways
2. Project grants (Highway Safety Act, 1966) to increase highway safety via application of federal program standards. $2 million estimated for 1977.	Local cash match encouraged. Funds disbursed on reimbursement basis.	Division of Highway Safety
WATER/SEWER		
1. Project grants to correct or alleviate emergency situations relating to sewer collecting and treatment; water treatment/distribution. Funds appropriated yearly by the General Assembly. $83,700 awarded to 11 communities 1975-76. $200,000 appropriated for 1976-77.	Cities, counties, special districts, water user associations are eligible. Local cash match encouraged.	Office of the Executive Director, Department of Local Affairs
2. Project grants to purchase pre-design engineering services for existing sewer systems. Yearly appropriation by the General Assembly. $105,180 appropriated to 27 communities in 1975-76. Same funding level expected for 1976-77.	City, counties, council of governments, special districts, service authorities are eligible. Inadequacies in system must be certified by the Department of Health.	Division of Local Government
3. Project grants (Title II, Federal Water Pollution Control Act) to construct city sewage treatment works to meet federal water quality standards. $87 million appropriated in 1975-76.	Cities, counties, and special districts are eligible. 25% local cash match required. Funds usually disbursed on reimbursement basis.	Department of Health, Water Quality Control Division of EPA
4. Project grants (25-8-701) to construct waste water treatment facilities. $2.3 million estimated funding for 1976-77. Average grant $110,000. (CRS 1973)	Local cash match individually determined based on fiscal need. Cities, counties, council of governments and special districts are eligible.	Department of Local Affairs Division of Local Government
5. Project grants (Federal Water Pollution Control Act Amendments, 1972) for "Areawide Waste Treatment Management" to develop and implement plans to improve water quality.	Grants to designated areas only. Region 11 is designated.	"208" Planning Office

PERMITS REQUIRED FOR COAL MINING IN COLORADO

According to developers of currently proposed coal mines, the following permits are among those that need to be obtained before operations can begin. [The permits listed below may not be the official name, however.] Further information on permits required is available in Kinney, 1977.

Local

Special Use Permit--mine and other facilities

Solid Waste Disposal Permit

State

Air Pollution Emission Permits

License to operate

Explosives permit

Mined Land Reclamation Permit

NPDES Permit (National Pollution Discharge Elimination System from point sources)

Notice of Prospecting (Mineral Permit)

Water Engineer Well Permit

-Water Augmentation Plans

Federal (see pp. 51,52 listing of Federal offices for more information)

EIS

Lease approvals (BLM)

Rights-of-way approvals

Mine and development plans

P.S.D. permit (EPA - prevention of significant deterioration of air quality)

Other

Water-rights acquisition

RESPONSIBLE AGENCIES -- STATE

The following State agencies are responsible for issuing these permits (addresses and phone numbers are listed in Part IV):

Department of Health

Air Pollution Control Division: air quality standards and regulations
Water Quality control Division: water quality standards and regulations

Department of Natural Resources, Division of Water Resources
Water wells, reservoir controls, and water rights records

Department of Natural Resources, Mined Land Reclamation Division
Mining permits (mineral exploration) and reclamation plans

Department of Natural Resources, Division of Mines
Mining licenses, coal mines laws, manpower/safety/health training

Department of Natural Resources, State Board of Land Commissioners
State lands records and leasing

Public Utilities Commission
Fixed public utilities regulations

Department of Highways
Planning and research, right-of-ways

RESPONSIBLE AGENCIES -- FEDERAL

The following is an outline of Federal energy-related offices and responsibilities. For addresses and contacts, refer to the listings in Part VI.

Department of Energy - research and development in mining and coal utilization, synthetic fuels, leasing (shared with Interior Department), coal cleaning, utility and factory conversion, biomedical research, environmental control, utility regulation, data collection, and university grants. Key responsibilities: energy technology, resource application, environment, energy regulatory administration, energy research.

Department of the Interior - mining technology, reclamation research, health R&D, coal cleaning, resources analysis, hydrology investigation, public land classification, regulation of leased lands and strip mining, and state assistance programs. Key responsibilities: energy and minerals, Office of Surface Mining, land and water resources, fish & wildlife & parks.

Department of Labor - health and safety regulations and health-related benefits. Key responsibilities: Mine Safety and Health Department (has recently replaced Mine Enforcement and Safety Administration, MESA), employment standards, mine enforcement and safety administrator.

Environmental Protection Agency - coal utilization research and development, cleaning technology, biomedical research, and regulation of air and water standards and of toxic materials. Key responsibilities: air and water management, water and hazardous materials, for enforcement, research and development, energy, minerals and industry.

Department of Agriculture - leasing on lands controlled by the department reclamation programs and research technical assistance on hydrology and conservation, and loan programs to utilities. Key responsibilities: conservation, research and education, rural development.

Corps of Engineers - authority over lock and dam construction and other water transportation systems.

Interstate Commerce Commission - railroad and slurry pipelines.
Tennessee Valley Authority - projects in strip mine reclamation and coal technology. Key responsibilities: Office of Energy Research.

Tennessee Valley Authority - projects in strip mine reclamation and coal technology. Key responsibilities: Office of Energy Research.

Department of Transportation - railway assistance programs and studies of coal transportation needs. Key responsibilities: federal railroad administration.

Department of Health, Education & Welfare - biomedical and environmental research on coal. Key responsibilities: health, National Institute for Environmental Health, National Institute for Occupational Safety & Health.

Department of Commerce - assistance in planning to energy, transportation and other coal departments. Key responsibilities: economic development.

COAL PRICES

The following factors are among those that affect coal prices both in Colorado and throughout the U.S.:

1) Demand considerations such as oil prices, coal vs. nuclear power generation, growth of electrical energy demand, and sulfur oxides emissions control policies (Moskow, 1977, pp. 7 - 9).

2) Long-run supply factors such as regional coal resources and reserves, characteristics and development, price factors, environmental and legal constraints, and transportation costs (Moskow, 1977, pp. 7 - 9).

3) Location characteristics (overburden depth, coal bed thickness, drilling difficulty, requirements for blasting, climate and transportation), cost per unit of coal mined - depending upon how extensive the coal reserves are, installed mine capacity, additional deferred increased operating costs (Tyner, 1977, p. 37).

4) Surface vs. underground costs of operation result in differences in price. Underground mining requires extensive manpower, training and safety concerns; and underground reclamation concerns include acid mine drainage, subsidence, and waste material disposal (GAO, 1977, p. xii).
Surface mining requires large equipment but fewer workers. Surface mine reclamation costs are considerable; however, economists have estimated that cost per unit of coal mined is low enough that reclamation costs are not a serious burden (Walsh, 1974), although this point may be debatable.

Where extensive surface mining is possible in Colorado (e.g., in Routt and Moffat Counties), the operation, in comparison with Eastern surface mining, disturbs one-third as many acres per million tons of output and generates four times more dollars per acre for land rehabilitation (Walsh, 1974). However, natural revegetation problems and water shortages may be limiting factors in Western land rehabilitation. Detailed information on reclamation costs is available in Persse and others, 1977.

Selling price estimates vary greatly, chiefly because all contract prices are confidential. Prices listed on Tables 9a and 9c generally range between $15 and $25 per ton, F.O.B. mine.

According to the U.S. Bureau of Mines (1977), the coal produced in Colorado during 1976 was valued at over $144 million, assuming an F.O.B. mine price of $15.26/ton (assumed price for 1977 was $16.22). However, 1976 price estimates that are more specific to the type of coal mined are as follows:

steam/stoker - $12-$18/ton
lump - $15-$25/ton
metallurgical- $20-$40/ton (or more)

Metallurgical coal has specific qualities that render it vital to the steel processing industry. Its coking qualities, together with the fact that it is mined underground, boosts the price of such coal to as much as $40 (or more) per ton. According to reliable sources, the cost of mining coking coal in Colorado can be $20/ton or higher. The metallurgical coal mines are mainly captive mines and can barely keep up with the demands of their industrial plants, according to one operator contacted. On the other hand, many mines in southwestern Colorado, for example, due to lack of transportation, are forced to keep production low because their market is limited primarily to local sales. Companies willing to pay high prices for the high-grade coal in the area must depend upon truck transportation.

Recent conversations with each coal mine operator indicate a general need in Colorado for more long-term quantity contracts, which would come primarily from utilities. Northwestern Colorado mines are meeting much of that utility market demand. Colorado's bituminous coal resources are especially attractive to power plants because of their low sulfur and high Btu content. Increased bulk-quantity surface mining in response to an increasing steam coal demand is generally cheaper per unit of coal than is underground mining.

STATE AND COUNTY TAXATION OF COAL

"The Severance Tax will be levied against mining operations...(including coal) in Colorado effective January 1, 1978."

> The 1977 Severance Tax Act, H. B. 1076, was enacted by the Colorado General Assembly to serve two purposes: 1) to recover a portion of the State's mineral wealth lost by the removal of non-renewable natural resources, and 2) to provide a potential source of revenues necessary to assist the State government and local governments mitigating the impact of resource development.

An incentive for underground mining is built into the new severance tax by crediting underground mines for 50% of this tax. In essence, therefore, underground production is taxed at a rate of only $0.30 per ton while surface mined coal is taxed at a rate of $0.60 per ton.

The revenues from the coal severance tax will be divided among three separate State collections: The General Fund, the Local Government Fund, and the State Trust Fund. Through 1981, 45% of the revenue is designated for the Local Government Fund; the initial 45% designated for the General Fund will decrease to 20% by 1981 while the initial 15% designated to the State Trust Fund will <u>increase</u> to 35% by 1981.

The State General Fund expenditures will be under the supervision of the General Assembly. The State Severance Tax Trust Fund is to be managed by the Office of the State Treasurer. The dividends from this trust will go directly to the State General Fund.

The "Local Government Severance Tax Fund" will be located in the Department of Local Affairs and administered by the director of that department. An "Impact Assistance Advisory Committee" was also created and is to be comprised of representatives from both State government and from energy impacted areas.

"Eighty-five percent of the funds from the local government severance tax fund shall be distributed to those political subdivisions or economically impacted by development, processing, or energy conversion of minerals and mineral fuels subject to taxation under this article and used for the planning, construction, and maintenance of public facilities and for the provision of public services. Such funds shall also be distributed to political subdivisions of severance taxes paid in the determination of the valuation for assessment of producing mines.

"An amount equal to fifteen percent of said gross receipts credited to the fund shall be distributed to counties or municipalities on the basis of the proportion of employees of the mine or related facility who reside in any such county's unincorporated area or in any such municipality to the total number of employees of the mine or related facility (House Bill 1076, Section 32-29-10)".

Table 13 shows the compilers' projections for estimated 1978 severance tax revenues from those mines expected to produce greater than 8,000 short tons of coal per quarter.

Information given on Tables 12 and 13 may be useful in estimating revenues to be returned to the communities impacted by increasing coal development.

Table 13. Severance Tax Revenue Projections, 1978 (coal mines with 1978 projected production of over 32,000 short tons)

SURFACE-MINED	PROJECTED TONNAGE	SEV. TAX @.60/TON
GEC	75,000	$ 45,000
Canadian	300,000	$180,000
Kerr Strip	400,000	$240,000
Healey	50,000	$ 30,000
Jewell	40,000	$ 24,000
Trapper	1,250,000	$750,000
Nucla	110,000	$ 66,000
Edna	1,100,000	$660,000
Energy F.	4,250,000	$2,550,000
Hayden Gulch	75,000	$45,000
Seneca	840,000	$504,000
Lincoln	50,000	$30,000
		$5,124,000

UNDERGRD-MINED	PROJECTED TONNAGE	SEV. TAX @0.60/TON
Orchard Valley	400,000	$240,000
Twin Pines	42,000	$ 25.200
Munger	150,000	$ 90,000
Bear	175,000	$105,000
Hawks Nest	105,000	$ 63,000
Somerset	650,000	$390,000
Allen	630,000	$378,000
Maxwell	50,000	$ 30,000
Roadside	525,000	$315,000
Colowyo	750,000	$450,000
Eagle #5	475,000	$285,000
Eagle #9	250,000	$150,000
Bear Creek	60,000	$ 36,000
Coal Basin	200,000	$120,000
Dutch Creek	160,000	$ 96,000
Dutch Creek	270,000	$162,000
L.S. Wood	305,000	$183,000
Thompson Crk	50,000	$ 30,000
"	50,000	$ 30,000
Apex	60,000	$ 36,000
		$3,214,200

Grand Total	$8,338,200	
	- 1,607,100	(credit of $0.30/ton for underground production)
	- 1,024,000	(quarterly prod. exemptions of 8,000 ST/mine)
	5,707,100	Net State revenue from severance taxes

Ad valorem taxes, a Colorado property tax that each county directly collects, is based by statute on assessed valuations. These valuations generally amount to 30 percent of the actual market value of real and personal property remaining in possession at the conclusion of the business year; in other words, valuations for 1976 coal production and coal company property or improvements are based upon the remaining resources or property as of January 1, 1977. If actual value is not determinable, the base is supposed to be what the property will bring at a fair voluntary sale. The assessor's guidelines are 1) value of use, and 2) capability of use (Pederson, 1974, p. 281). The staff of the Colorado Division of Property Taxation offer assistance and training to county assessors upon request. STATCO, which also provides related assistance, is a State-County cooperative effort to share the cost and benefits of data processing programs (Department of Local Affairs, Division of Property Taxation, 1976, p. 10, 15).

The rate of taxation is determined by mills per dollar of assessed value. Mill levies are determined at the county level annually. However, mill levies of the various tax districts in each county may vary (Vernon Andrews, Colorado Div. Property Taxation, personal commun.).

Tax proceeds are used to cover the costs of city, town, and county governments and the costs of school districts (fire, water, sanitation, etc.). The major use within these categories is for elementary and secondary public education (Pederson, 1974, p. 281).

Table 14 shows the assessed valuations which are the bases for the ad valorem taxation of coal production, coal mining equipment, coal stock piles, coal supplies, etc. (Colorado Division of Property Taxation, 1977).

Comparing producing with non-producing coal lands, the 1977 figures on Table 14 show that the 65,980 acres of coal-producing lands had a January 1, 1977 value of $7,665,550, including improvements. The total non-producing coal lands, comprising 41,688 acres, had a land plus improvement valuation of $512,000.

Coal equipment valuation for 1977 amounted to $23,245,240, coal stockpile valuation was $186,290, and coal supplies valuation totalled $551,980. Significant increases, particulary in equipment valuation, occurred in Moffat and Routt Counties between January 1, 1976 and January 1, 1977.

The Statewide coal-related valuation total of $32,161,770 for 1977 represents more than a 60 percent increase over the total 1976 valuation of $19,508,390. Table 14 shows a breakdown of these figures by county.

The 1976 Statewide assessed valuation of coal land and real property of $19.51 million, taxed at a representative levy for a rural county of 66 mills, indicates a total income from ad valorem taxes of nearly $1.29 million. The 1977 assessed valuation of $32.16 million, taxed at the same mill levy, would have resulted in ad valorem tax revenues paid by the coal industry to the 15 coal-producing counties of over $2.12 million.

Table 14.--Assessed valuations of producing and non-producing coal properties, 1976 and 1977.

NATURAL RESOURCES

COAL - PRODUCING

COUNTY	NUMBER OF ACRES 1976	NUMBER OF ACRES 1977	VALUE OF LAND 1976	VALUE OF LAND 1977	VALUE OF IMPROVEMENTS 1976	VALUE OF IMPROVEMENTS 1977	TOTAL 1976	TOTAL 1977
DELTA	2,100	1,669	$ 141,040	$ 190,950	$ 17,870	$ 921,290	$ 158,910	$ 1,112,240
FREMONT	5,744	5,744	129,030	129,030	35,110	34,850	164,140	163,880
GARFIELD	1	1	110	110			110	110
GUNNISON	26	43	348,000	1,342,240	12,330	11,230	360,330	1,353,470
JACKSON	30	31	74,310	93,490			74,310	93,490
LA PLATA	225	225	6,380	5,910	1,180	500	7,560	6,410
LAS ANIMAS	2,800	10,503	420,100	510,050	489,200	585,320	909,300	1,095,370
MESA	14	14	8,120	8,120	6,570	950	14,690	9,070
MOFFAT	40	185	165,600	249,470	381,120	355,690	546,720	605,160
MONTROSE	2	2	24,800	21,260		4,900	24,800	26,160
PITKIN	380	394	219,590	197,330	1,030,800	908,710	1,250,390	1,106,040
RIO BLANCO	767		3,030		3,930		6,960	
ROUTT	24,838	47,119	2,127,650	2,037,210			2,127,650	2,037,210
WELD	39	50	16,850	22,400	34,540	34,540	51,390	56,940
TOTAL	37,006	65,980	$ 3,684,610	$ 4,807,570	$ 2,012,650	$ 2,857,980	$ 5,697,260	$ 7,665,550

NATURAL RESOURCES

COAL - NONPRODUCING

COUNTY	NUMBER OF ACRES 1976	NUMBER OF ACRES 1977	VALUE OF LAND 1976	VALUE OF LAND 1977	VALUE OF IMPROVEMENTS 1976	VALUE OF IMPROVEMENTS 1977	TOTAL 1976	TOTAL 1977
ARCHULETA	60	60	$ 200	$ 220	$	$	$ 200	$ 220
BOULDER		397		400				400
DELTA		560		28,430				28,430
FREMONT	425	425	14,020	14,020			14,020	14,020
GARFIELD	4,368	4,357	132,270	129,140			132,270	129,140
GUNNISON	7,395	7,413	216,470	116,120	610	2,300	217,080	118,420
HUERFANO	1,027	1,030	5,150	5,150			5,150	5,150
JACKSON	1,042	5,470	70,570	14,780			70,570	14,780
LA PLATA	80	310	2,040	1,870	6,090	6,940	8,130	8,810
LAS ANIMAS	3,882	3,979	13,090	41,290			13,090	41,290
MESA	9,751	9,751	39,180	39,220			39,180	39,220
MOFFAT	258	5,191	48,340	44,510			48,340	44,510
MONTROSE	2	2	14,720	9,810		4,910	14,720	14,720
PITKIN	1,615	1,615	55,110	37,680			55,110	37,680
RIO BLANCO	201	447	800	2,340	220	4,150	1,020	6,490
WELD	692	681	9,570	9,430			9,570	9,430
TOTAL	30,798	41,688	$ 621,530	$ 494,410	$ 6,920	$ 18,300	$ 628,450	$ 512,710

COAL - EQUIPMENT

COUNTY	1976	1977
BOULDER	$ 19,030	$ 36,590
DELTA	312,980	409,870
FREMONT	80,800	79,660
GARFIELD	8,720	9,470
GUNNISON	1,618,540	1,312,800
JACKSON		7,560
LA PLATA		8,000
LAS ANIMAS	1,493,470	2,942,870
MESA	638,540	1,137,030
MOFFAT	1,953,340	5,448,210
PITKIN	2,601,950	3,845,580
RIO BLANCO	1,250	1,000
ROUTT	3,835,760	7,902,160
SUMMIT		10,000
WELD	95,620	96,440
TOTAL	$ 12,660,000	$ 23,245,240

COAL - SUPPLIES

COUNTY	1976	1977
FREMONT	$ 180	$ 100
GUNNISON	13,420	214,370
LAS ANIMAS	232,400	218,820
MOFFAT	4,590	17,060
PITKIN	66,000	66,000
ROUTT	113,140	35,630
TOTAL	$ 429,730	$ 551,980

COAL - STOCKPILES

COUNTY	1976	1977
FREMONT	$ 50	$
GARFIELD	5,050	
GUNNISON	500	39,640
JACKSON	13,650	6,460
MOFFAT	11,270	13,910
ROUTT	62,430	126,280
TOTAL	$ 92,950	$ 186,290

REVENUES FROM STATE COAL LEASES

Colorado also derives income from rentals and royalties imposed on leases administered by the State Land Board. Table 15, which is based on the latest monthly report issued by the Land Board, shows large increases in revenues from State coal leases during two comparable eleven-month periods in 1976-77 and 1977-78.

This table shows that income to the School Permanent Fund increased approximately 650% during the 1977-78 period. Coal rentals received during the same period are nearly twice the amount collected in the previous year. These coal rental receipts are allocated to the School Income Fund.

Table 15. Colorado State Board of Land Commissioners receipts, May 1978 report.

	July 1, 1976 to May 31, 1977	July 1, 1977 to May 31, 1978
SCHOOL PERMANENT FUND		
Coal Production Royalties	$ 114,460.24	$ 755,533.03
SCHOOL INCOME FUND		
Coal Lease Rentals	128,011.50	231,234.79

In 1976, railroads were used to ship 8 million tons of Colorado coal, 45.5 percent of which was shipped out-of-State. A large portion of the tonnage that was shipped by rail--5.56 million tons--was initially trucked to the railhead. Trucks were used exclusively for approximately 1.5 million tons of coal, all of which was for in-State consumption by homes, businesses, institutions, and utilities (see Table 9).

Most of the current coal developments are located in western Colorado, while the greatest demands are coming largely from eastern Colorado. There are three train routes across the Continental Divide, all on the D&RGW Railroad. One is through the Moffat Tunnel and directly into Denver; coal is hauled from northwest Colorado by unit train on this route. Another route is over Tennessee Pass, again via D&RGW RR. Coal is hauled from Montrose, Mesa, Garfield, and Pitkin Counties by unit train via this route, which leads into Pueblo. The third route does not cross the Continental Divide, but rather extends southward from Creede through Del Norte and Alamosa, and over La Veta Pass into Walsenburg. All of the trackage for unit train coal transport suffers greatly from the heavy weights and frequent use. The Union Pacific line from the Walden area, in Jackson County, northward into Wyoming will not accommodate unit train traffic at all. The Colorado & Southern Railway, Burlington Northern, and AT & SF railroads haul unit train loads of coal along the Front Range Corridor, from Wyoming to New Mexico. Map Series 9 (Jones and others, 1978), published by the Colorado Geological Survey, shows the railroads of Colorado and the routes and directions travelled by coal trains in the State. Figure 8 displays the transportation network derived from Map Series 9.

Contracts for future coal production reveal that approximately 2 million tons will be transported by truck and as much as 13.9 million tons by rail in Colorado possibly as early as 1985. Based on these figures, the use of truck transportation will increase 33 percent, and rail use will increase 74 percent between 1976 and 1985.

The lack of a major railroad in all of southwestern Colorado severely limits the potential market for coal produced in that region. Options available

to the mine operators include 1) producing for a chiefly domestic local market, or 2) trucking the coal ± 150 miles to the nearest railhead. The second option adds approximately $7 per ton to the price of the coal (refer to Part III).

Projections of future mine expansions in southwestern Colorado are contingent upon the construction of rail facilities into this region, and/or the ability of the relatively high-quality coal produced here (see Table 4) to compete in the marketplace, considering the added cost of transportation by truck to the nearest existing railhead.

The lack of rail transportation in the rugged terrain of some parts of western Colorado is a major problem affecting coal development in that region. In addition, problems arising from existing coal shipments have already become major concerns and include the following:

1) The impact of unit train traffic, as well as coal truck traffic, through communities, especially those in the Front Range Corridor.

2) Potential land-use conflicts that might arise from expansion of the railroad system or relocation of rail lines to alleviate through traffic in the communities.

Rail expansion problems are so complex (GAO, 1977) that the authors have assumed no expansion of the transportation network in their coal production projections, even though many companies in Colorado have mentioned the need for more transportation services in order to handle their projected production increases.

Figure 8, a map of the rail system in Colorado, shows the extent of the problem in the southwestern part of the State. There is presently only one new spur line under construction, in Moffat County, for use by the Colowyo mine.

The listing on page 74 is a directory of rail transportation companies located in Colorado.

The coal-slurry pipeline proposed in Colorado (see below) is one alternative to rail transportation to Walsenburg and from Walsenburg to Texas. The proposal, however, is fraught with problems, including the question of eminent domain and the sources of the water required to make the slurry.

Coal-Slurry Pipeline - Proposed (Jones and others, 1978)

San Marco Pipeline Company (subsidiary of Houston Natural Gas, Houston, Texas and Rio Grande Industries, Denver, Colorado) from Walsenburg, Las Animas Co., to Angleton, Texas

Initial operating date:	early 1980's
820 miles long	
24" diameter pipe	
Coal capacity:	10-15 million tons/year
Water requirements:	10,000 acre-feet/year
Water source:	21,000 bbls/day from deep wells and small storage areas (location of wells not yet determined)

Table 16. Comparative costs for Western coal energy transportation alternatives (GAO, 1977, p. 5.25)

Mode	Cost per million end-use Btu's[1] (1975 dollars)
Slurry pipeline/ conversion to electricity	$ 6.18
Unit train/conversion to electricity	6.23
Mine-mouth conversion to electricity/shipment by wire	8.20
Mine-mouth gasification/ pipeline/conversion to electricity	11.28
Mine-mouth gasification/ pipeline/direct-use	2.87

Cost estimates vary widely; a 1976 Energy Research and Development Administration study shows significant cost advantages for slurry pipelines over unit trains for movements of over six million tons of coal per year over distances of 1,000 miles. However, the eminent domain question is yet to be settled for coal slurry pipelines.

[1]Assuming all-equity financing.

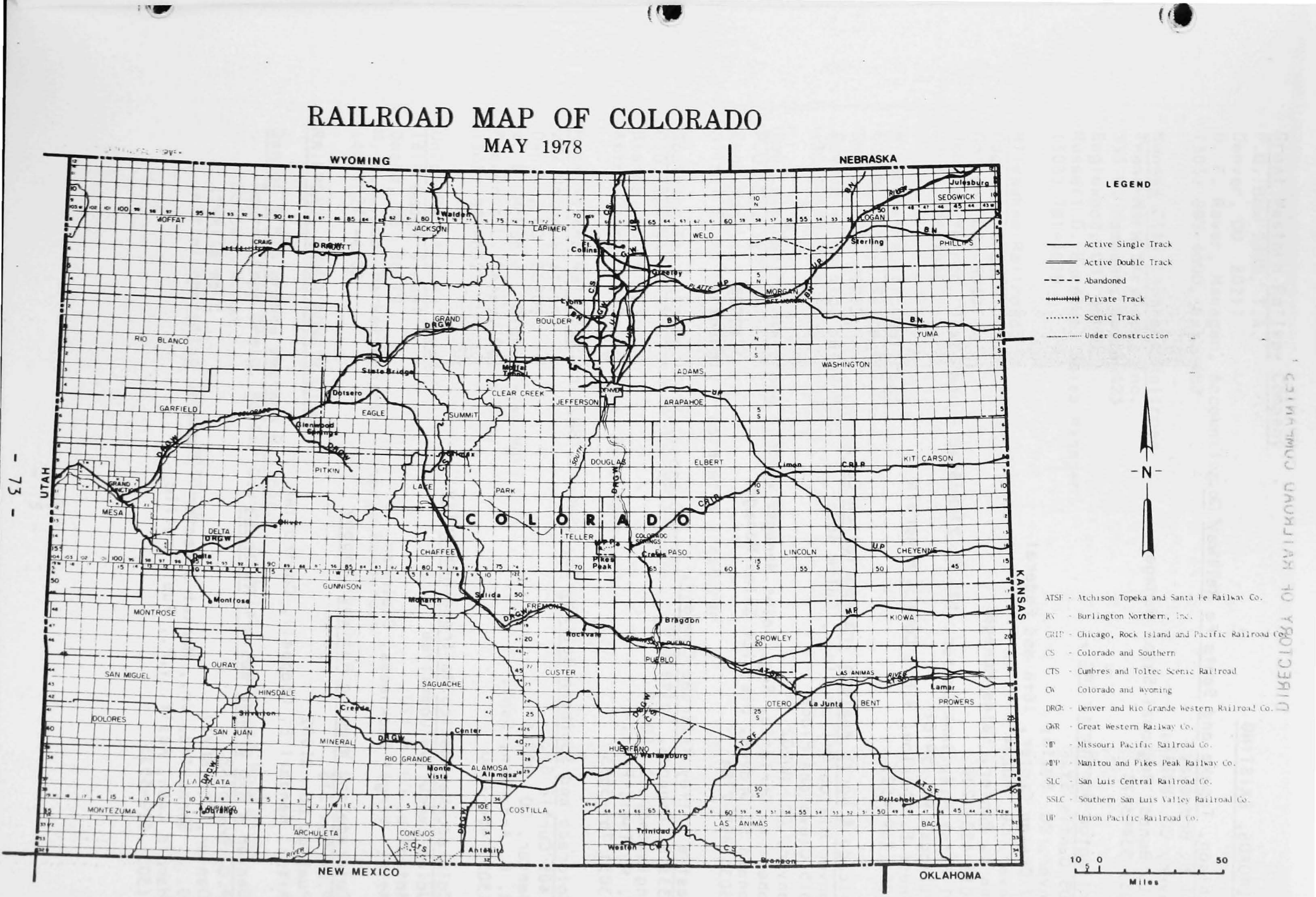

Fig. 8. Railroad map of Colorado, as of May 1978.

RAILROADS, EXISTING

Atchison, Topeka and Santa Fe Railway Co.,
5871 N. Broadway
Denver, CO 80216;
L. L. Bonds, Regional Sales Manager
(303) 534-3573

Burlington Northern, Inc.,
1405 Curtis St.
Denver, CO 80216;
207 Design Center, 16th and Federal
Denver, CO 80204
John L. Panter, Sales Manager
(303) 458-7200
801 First N.W. Bank Center, 175 N. 27th St.
Billings, MT 59101
Ernest E. Thurlow, V.P., Coal & Minerals
(406) 259-4521

Chicago & North Western Transportation Co.,
Denver Hilton Office Bldg., Suite 460;
1515 Cleveland Place
Denver, CO 80202
Robert W. Christie, Reg. Sales Manager
Donald S. Groves, District Sales Manager
(303) 893-2784

Castle Valley Railroad Company,
3333 S. Bannock, Suite 670
Englewood, CO 80110
W. M. Teel, Pres.
(303) 761-3683

Colorado and Southern Railway Co. (Subsid. BN, Inc.)
1405 Curtis St.
Denver, CO 80216
R. E. Anderson, Supt.
(303) 458-7200

Colorado-New Mexico Railroad Authority
Joint Executive Committee
Antonito, CO 81120
Attn: Virgil Backhauss, Chairman

Colorado and Wyoming Railway Company
P.O. Box 316
Pueblo, CO 81002
Attn: Randall E. Chappell, Controller

Denver & Rio Grande Western Railroad
P.O. Box 5482
Denver, CO 80217
G. A. Bennewitz, Jr., Market Director - Fuels
Harold Cash, Ass't. V.P., Fuel Traffic
(303) 629-5533

Great Western Railway Company
P.O. Box 5308, T.A.
Denver, CO 80217
D. F. Raver, Manager, Accounting & Traffic
(303) 893-4600, Ext. 483

Kansas City Southern Railroad
Trans-Mark Services, Inc.
333 W. Hampden, Suite 423
Englewood, CO 80110
Russell D. Burdine, Sales Manager
(303) 781-4079

Milwaukee Railroad,
Edgemont Branch
Golden, CO 80401
John H. Verron, Dist. Mgr.- Sales
(303) 988-7559

Missouri Pacific Railroad
601 Broadway, Suite 412
Denver, CO 80203
Edward R. Hornig, Sales Mgr.
(303) 623-3238

San Luis Central Railroad Company
P.O. Box 1249
Evanston, IL 60204
Attn: E. A. Burkhardt, President & Treasurer

Southern San Luis Valley Railroad Company
P.O. Box 98
Blanca, CO 81123
Attn: George M. Oringdulph, President

Rock Island Railroad
222 Union Station
Denver, CO 80206
W. L. McDaniel, Dist. Sales Mgr.
Freemond L. Seney, Sales Rep.
(303) 825-6323

Union Pacific Railroad
1416 Dodge Street
Omaha, NB 68179
N. R. Linse, Market Manager - Energy Resources
(402) 271-4501

RAILROAD, UNDER CONSTRUCTION

Denver & Rio Grande Western Railroad
Route: From Craig, Moffat County to Axial, southeast Moffat Co. (near Colowyo Mine)
25-mile spur
Initial operating date: 1977-78

IMPORTS AND EXPORTS OF COAL

The 3.6 million tons of coal that were shipped out-of-State in 1976 represent an increase of 38 percent over that exported during 1975. The large demand for Colorado coal in Utah and California came from steel plants in 1976 (Fig. 9); in Illinois, Iowa, and Nebraska, both utilities and industry bought significant amounts of Colorado coal, while in Indiana the demand came entirely from utilities. However, Colorado power plants required imports of coal totalling 3.6 million tons. The imported coal was used by eastern Colorado electric power generating plants (e.g., in Pueblo). About 89 percent of the imports came from the Amax Belle Ayr mine in the Powder River basin, northeastern Wyoming (partially due to ease of access); the remaining imports came from Utah, the Appalachian region, and the Oklahoma-Arkansas region.

Colorado was a net exporter of coal in 1973 and 1974. In 1975, exports also exceeded imports; however, 1976 exports approximately equalled imports, as shown below on Table 17 (Colorado Division of Mines and Colorado Geological Survey).

Table 17. Colorado imports/exports of coal

1973	Imports exceeded exports
1974	Imports 2.7 million tons Exports 2.9 million tons
1975	Imports 2.5 million tons Exports 2.6 millions tons
1976	Imports 3.6 million tons Exports 3.6 million tons

In 1977, the Mississippi and Arizona demand came from utilities. The large demands in Texas came from both industry and utilities.

New production in 1978 will supply Texas industries, California steel plants, and possibly overseas steel plants.

Figure 9 displays the interstate shipments of coal in 1976 and future contracts. These projections are derived from Table 9.

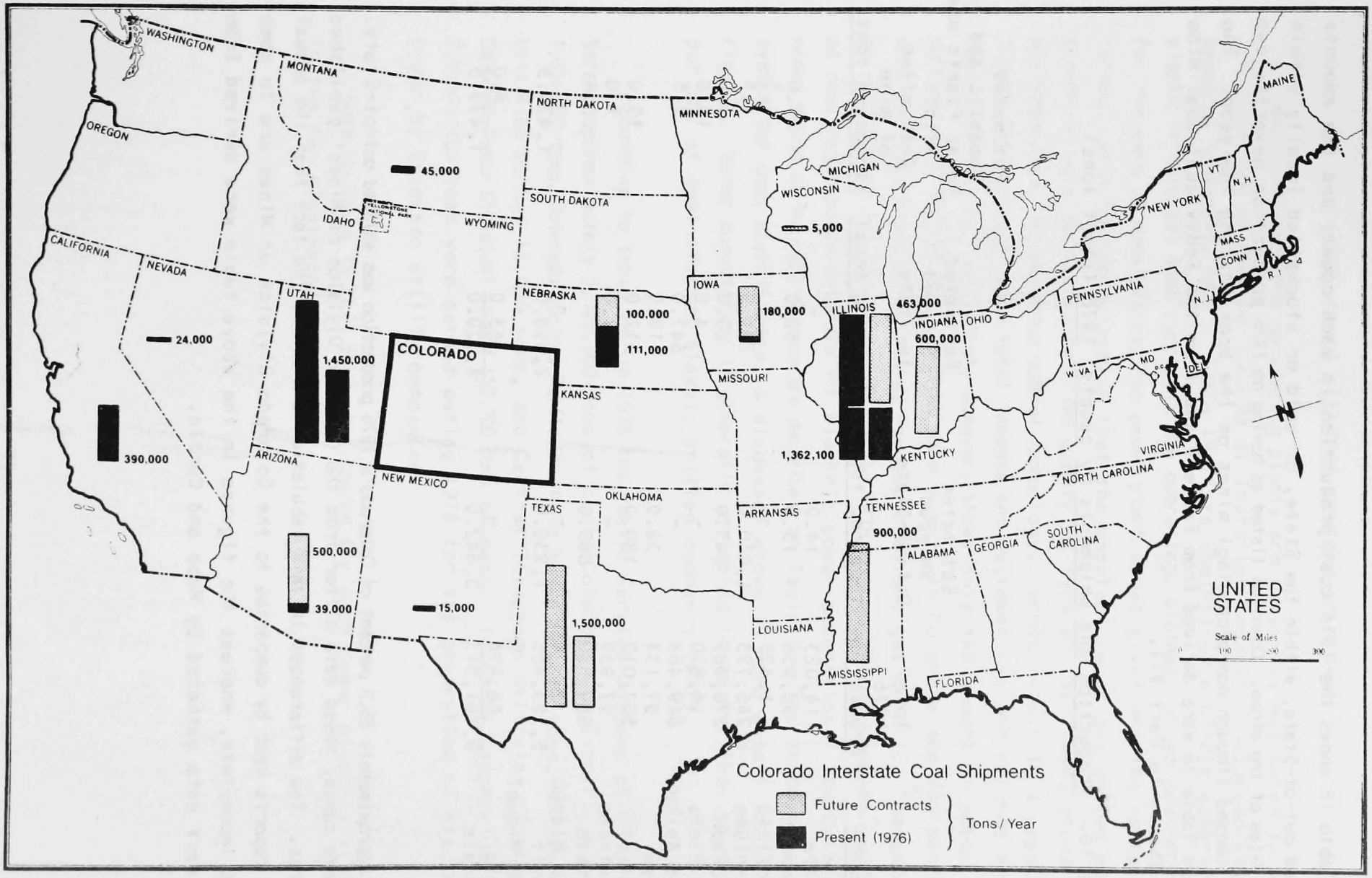

Fig. 9. Colorado interstate coal shipments, 1976, and future contracts.

Table 18 shows the 1976 coal production in each county and the amounts shipped out-of-State, within the State, or sold or stockpiled locally within 10-15 miles of the mines. Counties listed as having no 1976 production nevertheless had licensed (though non-producing) mines on the books during the year. The data on Table 18 were derived from Table 9 and from the individual Coal Mine Data Sheets in Part VII.

Table 18. Production and shipments by county, 1976 (short tons)

County	Total 1976 Production	Estimated Shipped Out-of-State (thousand tons)	Estimated Shipped In-State (thousand tons)	Estimated Domestic and Power Plants use within 0-15 miles of mine (thousand tons)
Delta	14,023	14.0	-	
Fremont	90,956	15.0	52.0	24.0
Garfield	1,425	-	-	1.5
Gunnison	1,246,723	1,030.0	209.0	7.5
Jackson	270,085	245.0	20.0	5.0
La Plata	16,870	-	4.0	13.0
Las Animas	649,468	-	647.0	2.5
Mesa	57,134	39.0	18.0	
Moffat	507,010	180.0	312.0	15.0
Montrose	97,939	-	97.0	1.0
Pitkin	889,520	889.0	-	0.5
Rio Blanco	0	-	-	-
Routt	5,553,486	1,230.0	2,898.0	1,425.5
San Miguel	0	-	-	-
Weld	66,874	-	63.0	4.0
Totals	9,461,513	3,642.0	4,320.0	1,499.5

Approximately 38.5 percent of Colorado's 1976 production was shipped out-of-State. In some cases, these data differ from the Colorado Division of Mines' published figures. The differences in this tabulation are due to the fact that the annual mine reports sent by companies to the Colorado Division of Mines are in some cases incomplete, whereas the figures in the above table were derived from contract data gathered by Hebb and Curtin.

COAL-FIRED ELECTRIC GENERATING PLANTS

Coal-fired electric generating plants are generally estimated to burn 3 million tons of coal per 1000 MW of installed capacity (Colorado Energy Research Institute, 1976). Table 19 lists coal-fired electric generating plants in Colorado that currently are operating, planned, or are now retired. For the sake of consistency, the power plant sizes given are the nameplate ratings, with the understanding that the manufacturers' guaranteed power generation capacity will vary with the quality and type of fuel used, elevation and temperature, and pollution control technology. Gross output is a capacity figure often used to show total inhouse and customer use and related total coal consumption. Net output, however, shows only the amount of power for customer use. Most of the coal-fired power plants in Colorado are 100 percent coal-burning; however, some also use suplementary gas or oil. The amount of coal burned is given for 1975 and/or 1976 to show the approximate quantity of coal required in Colorado for electric power generation. The Colorado mines listed as the coal sources are described on Table 9. The transportation system for coal distribution is discussed above in more detail (also see Fig. 8). Water consumption is generally estimated to be 6-7 lbs. of water per lb. of coal (Vernon Winkel, written commun., 1977).

According to Table 19, in 1976 the Public Service Company of Colorado burned approximately 5,726,000 tons of coal, Colorado Ute Electric burned 1,614,500 tons, Colorado Springs Public Utilities burned 441,600 tons, Walsenburg Utilities burned 15,000 tons, and Central Telephone Utilities (Southern Colorado Power Division) burned 110,700 tons of coal. In total, approximately 7.9 million tons were burned during 1976 for the generation of electric power by Colorado utility companies.

Note on Table 19 that the water source for each power plant is listed in the far right-hand column.

Table 19.--Coal-fired electric-generating plants in Colorado, existing and proposed.

Power Plant, Units City (owner) Map Site	Status	Nameplate Power Generation[2]	% Coal-Fired 1975, 1976 Amount Burned	Coal Source (Mine Name)	Mode of Transport.	Water Source
Arapahoe 1,2,3,4 Denver Public Service Co. of Colorado 2601 S. Platte River Dr. on S. Platte River T5S, R68W, Sec. 3-4 Denver County	Operating	232 MW	72% (100% capacity) 654,100 tpy 661,896 tpy	Edna, Energy, Lincoln/ Eagle (closed), Rosebud (Wyoming)	C&S RR	South Platte River
Bullock 1,2 Montrose Colorado Ute Electric T49N, R9W, Sec. 33 Montrose County	Operating	#1 5.0 MW #2 5.0 MW 10.0 MW	100% 31,986 tons (1976)	Bear Spot Sales	DRGW	Uncompahgre River
Cameo 1,2 Palisade Public Service Co. of Colorado T10S, R98W, Sec. 28 Mesa County	Operating	66 MW	100% 176,357 tons (1975) 162,438 tons (1976)	Edna, Energy, Bear, Apex #2	DRGW	
Cherokee 1,2,3,4 Commerce City Public Service Co. of Colorado 6198 Franklin Street on S. Platte River T3N, R66W, Sec. 9-10 Adams County	Operating	710 MW	100% 2,151,151 tons (1975) 1,779,566 tons (1976 not fully operating)	Energy, Belle Ayr (Wyoming)	Rail	South Platte River
Comanche 1,2 Pueblo Public Service Co. of Colorado T21S, R64W, Sec. 30 Pueblo County	Operating	700 MW	100% 2,445,534 tons (1976)	Belle Ayr (Wyoming)	Rail	
Craig 1,2 Craig Colorado Ute Electric T6N, R91W, Sec. 14-16, 21-23 Moffat County	Under Construction	410 MW 410 MW 820 MW	100% 2,300,000 tpy	Trapper	Truck	Yampa River

Table 19.--(cont.)

Power Plant, Units City (owner) Map Site	Status	Nameplate Power Generation	% Coal-Fired 1975, 1976 Amount Burned	Coal Source (Mine Name)	Mode of Transport.	Water Source
Craig 3 Routt County or Moffat County	Proposed	300-400 MW	100% 1,000,000 tpy	Trapper and Williams Fork #3 or Seneca and Yoast	Truck	Yampa River
Durango Plant 1,2,3,4 Durango Colorado Ute Electric La Plata County	Retired					
Hayden 1,2 Hayden Colorado Ute Electric T6N, R87W, Sec. 18 Routt. County	Operating	#1 202.656 MW #2 257.100 MW 459.756 MW	100% #1 & #2 1,600,000 tpy #1 682,555 tons (1976)	Seneca	Truck	Yampa River
Martin Drake Colorado Springs Colorado Springs Public Utilities T14S, R67W, NE¼ S24 El Paso County	Operating	#1 5 MW #2A 2.5 MW #2B 2.5 MW #3 5 MW #4 10 MW #5 44-Coal MW #6 66-Coal MW #7 127-Coal MW 262 MW	90.5% 441,600 tpy	Wise Hill #5, Edna Strip Healey Strip, Colowyo Strip	DRGW	Colorado Springs
Nixon #1 - June 1980 #2 - Cancelled Fountain Colorado Springs Public Utilities T16S, R56W, Sec. 19, 20, 29, 30 El Paso County	Under Construction	200 MW	100% 750,000 tpy	Colowyo Strip	DRGW	Deep Wells on Power Plant Property
Nucla 1,2,3 Colorado Ute Electric T46N, R15W, Sec. 13 Montrose County	Operating	#1 12.65 MW #2 12.65 MW #3 12.65 MW 36.95 MW or 34.5(PUC)	100% 100,000 tpy 90,209 (1976)	Nucla	Truck	San Miguel River
Oliver Plant Oliver (near Somerset) Gunnison County	Retired					

Table 19.--(cont.)

Power Plant, Units City (owner) Map Site	Status	Nameplate Power Generation	% Coal-Fired 1975, 1976 Amount Burned	Coal Source (Mine Name)	Mode of Transport.	Water Source
Pawnee 1 Brush Public Service Co. of Colorado T3N, R56W, Sec. Morgan County	Under Construction	500 MW	100% 1,839,000 tpy Planned	Eagle Butte (Wyoming)	BN	South Platte River
Rawhide near Wellington Platte River Power Authority T10N, R68W, Sec. 5,8 Larimer County	Proposed	209 MW	100% 800,000 - 900,000 tpy	Wyoming	CSRR	
Southeast Colorado Plant #1, #2 #1 - April 1984 #2 - April 1986 Public Service Co. of Colorado Undetermined Location	Very Speculative	 500 MW 500 MW	100% 1,730,000 tpy 1,500,000 tpy	 Undetermined Undetermined		
Southwest Colorado Plant Colorado Ute Electric Undetermined Location	Very Speculative	500-600 MW	100% 1,500,000 tpy			
Valmont (6 Units) Boulder Public Service Co. of Colorado #1 (gas only) #2 (gas only) #3 (gas only) #4 (gas only) #5 (coal) #6 (Combustion Turbine for peaking, non-coal) T1N, R70W, Sec. 22 Boulder County	Operating	273.75 MW 32.5 MW 25 MW 25 MW 25 MW 166.25 MW 45.2 MW	300, 306 tpy	Energy (Colorado) (1976) Rosebud (Wyoming)	UPRR	City of Boulder

Table 19.--(cont.)

Power Plant, Units City (owner) Map Site	Status	Nameplate Power Generation	% Coal-Fired 1975, 1976 Amount Burned	Coal Source (Mine Name)	Mode of Transport.	Water Source
Walsen Plant Walsenburg Walsenburg Utilities T28S, R66W, Sec. 9 Huerfano County	Operating	11 MW	100% 20,000 tpy 15,159 Tons (1976)		Truck	
W. N. Clark 1,2 Canon City Central Tele. Util. S. Colorado Power Div. T18S, R70W, Sec. 32 Fremont County	Operating	#1 19 MW #2 23 MW 42 MW	80% 110,709 tons (1976)	Cedar Canon Strip, Twin Pines, Healey Strip, Jewell Strip	Truck	Arkansas River

[1]The above information has been adapted from EPA 308 Data Forms, USBM (J. B. Smith), and unpublished reports of the Water Policy Study group, Colorado Department of Natural Resources, and the Colorado Department of Agriculture (1977).

[2]Gross output generally is greater than nameplate capacity. Nameplate figures are from EPA 308 Forms (Sec. 308, Water Pollution Control Act of 1972) and from telephone conversations with or written communications from public utilities.

Water is used in coal mining for dust control, coal washing, personal use by miners, and revegetation. Table 20 shows the amount of water needed per million tons of coal produced by surface mining (Colorado Department of Natural Resources Water Policy Study, unpublished data, 1977).

Table 20. Surface coal mining water consumption by usage (per million tons of coal produced)

Acre-feet Consumed	Water Usage
17.3	Dust control, domestic use at mine
18.4 - 45.1	Dust control, coal washing
7.3 - 19.46	Road, mine, embankment dust control, service & fire water, sanitary & potable water
44.5 - 133.5	Dust control
210	Dust control, domestic use

Coal-fired power plants, however, consume much larger quantities of water than do coal mining activites. Water is used at steam-electric power generation plants in four different processes: 1) ash quench, 2) steam production, 3) air pollution control, and 4) cooling. Table 21 displays estimated consumption by process (Colorado Department of Natural Resources Water Policy Study, unpublished data, 1977).

Table 21. 1000 MW Electric-generation plant water consumption

Ash quench	1,000-10,000	ac-ft/yr.
Steam production	6,000	ac-ft/yr.
Air pollution control		
Wet scrubbers	1,850-2,000	ac-ft/yr.
Citrate process	200-300	ac-ft/yr.
Nahcolite	0	
Cooling	8,800-15,000	ac-ft/yr.

Various methods exist for transporting or converting coal to the end-use. Table 22 displays estimates of water use by each method (Vernon Winkel, written commun., 1977).

Table 22. Water consumption by coal conversion or transportation method

	Pounds of Water Needed per Pound of Coal
Slurry Pipeline (one-way)	1.1
Electric Power Generation, Coal (evaporative cooling)	6.8
Coal Gasification	3.0 to 8.2
Coal Liquefaction	2.6 to 12.7
[1]Electric Power Generation, Nuclear (evaporative cooling)	7.7
[1]Oil Shale Processing	0 to 3.4

[1]Using an energy equivalent to one pound of coal.

DIRECTORY OF LOCAL DOMESTIC COAL DEALERS, F.O.B. MINE

In lieu of conversion or exportation, local use exists in many places in Colorado. Coal is available for pick-up by local domestic or institutional consumers at the following localities:

Aguilar

Healey Strip Mine, 1 1/2 miles NW of Aguilar
Horner Coal Co.
Box 20218 Montclair Station
Denver, CO 80220
(303) 377-0267

Jewell Strip Mine, 2 miles NW of Aguilar
Horner Coal Co.
Box 20218 Montclair Station
Denver, CO 80220
(303) 377-0267

Baldwin

O.C. Mine #2, 2 miles SE of Baldwin
O.C. Mine Company
Box 772
Gunnison, CO 81230
Henry Weaver, (303) 641-1560 or 641-1044 (home)

Bear River

Meadows Strip #1, 2 miles south of Bear River
Sun Coal Company, Inc.
Box 26
Milner, CO 80477
(303) 5692

Carbondale

Sunlight Mine, 5.5 miles west of Carbondale
Carbon King, Ltd.
2nd and Union
Lakewood, CO
(303) 989-1740

Cedaredge

Red Canyon Mine, 2 miles NW of Cedaredge
Coalby Mining Company
P.O. Box 167, Rt. 1
Cedaredge, CO 81413
(303) 856-3821

Tomahawk Mine, 4 miles NW of Cedaredge
Lyle Kyllo
84 Montrose Drive
Montrose, CO 81401

Craig

Brasel & Sims Coal Co.
P.O. Box 956
Craig, CO 81625
(303) 824-9228 or 824-9789

Florence

Black Diamond Mine, 6.5 miles SW of Florence
GEC Minerals, Inc.
Box 225
Florence CO 81226
(303) 784-6891

GEC Mine, 7 miles SW of Florence
GEC Minerals, Inc.
Box 225
Florence, CO
(303) 784-6891

Hesperus

Peacock Mine, 3 miles SW of Hesperus
Peacock Coal Company
Rt. 1, Box 201
Hesperus, CO 81326
(303) 385-4377

King Coal Mine, 4 miles SW of Hesperus
National King Coal, Inc.
4424 County Rd. 120
Hesperus, CO 81326
(303) 385-4528

Meeker

Reinau #2 Mine, 6 miles NE of Meeker
Sewanee Mining Company
Box 130
Meeker, CO
(303) 878-5338

Nucla

Nucla Strip, 4 miles NW of Nucla
Peabody Coal Company
Box 638
Nucla, CO 81424
(303) 864-7364

Oak Creek

Edna Mine, 4 miles N. of Oak Creek
Pittsburgh & Midway Coal Mining Company
Box 176
Oak Creek, CO 80467
(303) 736-2526

Apex #2 Mine, 6 miles NW of Oak Creek
Sunland Mining Corp.
25990 Routt Co. Rd. 29, Box 55
Oak Creek, CO 80467
(303) 736-2376

Pagosa Springs

Martinez Mine, 15 miles SW of Pagosa Springs
Chimney Rock Coal Company
Star Route 3, Box 52A
Pagosa Springs, CO 81147
(303) 968-5903

Paonia

Blue Ribbon Mine, 1 mi. NE of Paonia
Sunflower Energy Corp.
770 Grant St., Ste. 100
Denver, CO
(303) 837-1242

Rockvale

Twin Pines Mine, 2 miles S. of Rockvale
Twin Pines Coal Company
1780 Brookside Avenue
Canon City, CO 81212
(303) 724-3361

Silt

Eastside Mine, 4 miles N of Silt
Louis Bendetti Coal Company
Box 156
Silt, CO 81652
(303) 876-2816

Nu Gap #3 Mine, 3.5 miles N of Silt
Henry Bendetti
1117 Grand Avenue
Glenwood Springs, CO 81601

Somerset

Bear mine, 1 1/2 miles E of Somerset
Wm. A. Bear, Bear Coal Company, Inc.
Somerset, CO 81434
(303) 929-5775

Hawks Nest East and West Mines, 2 miles E of Somerset
Western Slope Carbon, Inc.
Somerset, CO
(303) 929-5815 or (801) 534-3687

Walden

Kerr Strip #1 Mine, 9 mile SE of Walden
Kerr Coal Company
Box 6
Walden, CO 80480
(303) 723-8287

DIRECTORY OF RETAIL COAL DEALERS

Ash Mesa, CO
Willow Creek Enterprises

Bayfield, CO
Gosney Brothers Construction
East of Bayfield, P.O. Box 256
Bayfield, CO 81122
(303) 884-9453, 884-2651

Boulder, CO
Mac's Coal and Wood (Rollinsville)
Nelson Coal Company

Colorado Springs, CO
Aden's Coal and Wood Yard
C & C Sand Company
118 Buchanan
Colorado Springs, CO
(303) 473-7945

Teller Redi Mix, Inc.
Woodland Park, CO
(303) 687-2310

Cortez, CO
Willie Sanchez
Rt. 1, Box 22C
Cortez, CO 81321
(303) 565-3562

Cripple Creek, CO
Young Coal and Feed

Denver, CO
American Coal Sales, Inc.
1325 W. 9th Avenue
Denver, CO 80204

Burl Coal and Ice Company
2607 Glenarm Place
Denver, CO
(303) 892-1061

Western Stoker & Mfg.
Box 9 K
Arvada, CO 80001

Elk Coal Company (purchased by American Coal Sales, Inc. - see above)

Rio Grande Company
123 Santa Fe Drive
Denver, CO
(303) 825-2211

Twin Mountain Rock Company
W. 48th Avenue & Huron
Denver, CO
(303) 573-1240

Durango, CO
Durango Ornamental Iron
1502 Main Avenue
Durango, CO 81301
(303) 247-0746 or 259-2686

Erie-Longmont, CO
Imperial Coal Company
3747 Weld County Rd. No. 8
Erie, CO
(303) 828-3283

Lincoln Mine (Frederick) - Temporarily out of business (local sales expected to begin in September 1978)

Franktown, CO
Franktown Feed & Ranch Supply
2129 N. State Hwy. 83
P.O. Box 68
Franktown, CO 80116
(303) 688-3062

Golden, CO
G. H. Stuart Company
1051 Ford
Golden, CO 80401
(303) 279-2442

Grand Junction, CO
Mesa Feed and Farm Supply
715 South 7th Street
Grand Junction, CO 81501
(303) 242-7762

Greeley, CO
Keyser Coal and Trucking
601 11th
Greeley, CO 80631
(303) 352-5957

Monarch Plumbing & Supply Company (Boiler Distrib. & Mfg.)
601 11th
Greeley, CO 80631
(303) 352-5957

Montrose, CO
Patton Coal and Ice Company (also Stokermatic Distrib.)
Tony Bear Coal Company

Ouray, CO
Boyd Paul Coal Company
725 2nd Street
Ouray, CO
(303) 325-4491

Olathe, CO
Kolz Coal Sales

Pagosa Springs, CO
Hawkins Trucking
P.O. Box 542
Pagosa Springs, CO 81147
(303) 968-2280

Pueblo, CO
Mountain Ice & Coal Company
Western Coal Supply & Trucking

DIRECTORY OF COAL PREPARATION FACILITIES

Coal washing plants

C.F. & I. Steel Corp.
P.O. Box 316
Pueblo, CO 81002
(at coking plant)
Las Animas County

Cambridge Mining Corp. (now GEX Colorado Co.)
P.O. Box W
Palisade, CO 81526
CMC mine (now Roadside mine)
Mesa County

Mid-Continent Coal & Coke Co.
P.O. Box 158
Carbondale, CO 81623
1 plant for all 5 mines (Bear Creek, Coal Basin, Dutch Creek, No. 1 and No. 2, L. S. Wood)
Pitkin County

Imperial Coal Co.
3747 Weld County Road No. 8
Erie, CO 80516
Eagle mine (presently idle)
Weld County

Coal coking plant

C.F. & I. Steel Corporation
P.O. Box 316
Pueblo, CO 81002
J. N. Matheson, Mgr. of Mining
C. K. Pearson, Supt. Coke Plant
Tel. No. (303) 561-6622
Location: Pueblo, Colorado
Coal Transportation: C&W, AT & SF, D&RGW, and C&S RRs
Daily Capacity: 3600 T Coal; 2400 T. Coke
Coal Used: 80% Colorado and 20% Arkansas
Produces furnace-grade coke

PART V. SURVEY OF COAL-FIRED HEATING EQUIPMENT MANUFACTURERS IN COLORADO

(by D. H. Hebb and M. S. Curtin)

INTRODUCTION

The United States presently relies upon fossil fuels -- oil, gas and coal -- to provide nearly 90 percent of its energy requirements. Unfortunately, the largest part of our energy requirement is satisfied by the cleanest, least abundant fuels - natural gas and oil. The remaining reserves of oil and gas in the U.S. constitute less than 10 percent of the total U.S. "energy reservoir," whereas they presently provide over 70 percent of our energy requirements. Consequently, our continued reliance upon these "clean" fuels in all sectors of the economy will result both in dwindling supplies and sharply increasing prices.

During the winter of 1976-1977, many industrial and commercial users dependent upon natural gas or fuel oil were forced to shut down in order to provide adequate supplies for the times ahead, since the domestic U.S. production of oil and gas has been declining since the early 1970's. Consequently, renewed interest has been expressed regarding utilization of our most abundant fuel - coal - to provide space heating.

This report, which summarizes the coal-burning equipment and technology currently available, should assist the private or commercial decision-maker who is interested in exploring the feasibility of installing or converting to a coal-fired heating system.

NATIONAL SUMMARY

National coal equipment manufacturers were surveyed from the Thomas Register, a compendium of equipment manufacturers of all types throughout the U.S. The most surprising fact learned from conducting a telephone survey of these manufacturers was that the coal equipment manufacturing industry has been in a serious decline, with regard to both technical improvements and production capacity, since World War II and the advent of inexpensive and plentiful supplies of gas and oil. The largest single deterrent to this country's ability to utilize coal-fired equipment is the stunted production capacity of the coal equipment manufacturing industry. At present, the average lead time for medium-sized boilers is 1-2 years, while large coal-fired systems may require 3-5 years. Human resources are also constrained. Many of the best salesmen working for a major stoker manufacturer are over 70 year old - and yet still working. Additionally, most States require that an operating boiler have a licensed foreman in attendance continuously. However, licensed personnel are presently qualified principally by on-the-job training or other boiler-related work experience.

In summary, the lengthy leadtime for equipment delivery, the dearth of trained operator personnel, and the uncertainty of the cost and availability of air pollution control equipment all contribute to delays in installing or converting to a coal-fired heating system.

COLORADO OVERVIEW

Coal production in the State of Colorado has been increasing steadily since the early 1970's. The coal production forecast for 1980 ranges from 17.4 to 24.1 million tons. While most of this production will be shipped out-of-State, it is inevitable that in-state consumption will also increase commensurately. The demand is likely to be the greatest in the utility and industrial sectors, followed by large commercial enterprises (especially warehousing), and the residential sector. The current economic ranking of fuels for space heating appears to be: natural gas, propane or LNG, fuel oil, coal, and electricity. This ranking will probably continue through the short term, i.e. through 1980, simply because natural gas is still relatively inexpensive and propane and fuel oil are "clean". However, over the mid-to-long term period, i.e., from 1980 through the year 2000, greater reliance will have to be placed on coal and solar space heating, particularly insofar as the industrial and commercial sectors are concerned.

Here in Colorado, residential fuel oil and bottled propane or LPG are already more expensive than coal, while residential natural gas is slightly less expensive, at least on a dollar cost per million Btu basis, as shown on Table 23. However, this comparison is based strictly on the delivered fuel costs, and does not include other costs that might be associated with using coal, such as scrubbing or waste disposal.

Additionally, the previous comparison is applicable only to residential consumers. Industrial and commercial users would generally fall under a different (lower) rate schedule, since they regularly consume much greater quantities. Regardless, given today's fuel prices, the least costly space heating system would utilize natural gas.

Unfortunately, the present dilemma (which fuel to utilize for space heating) depends not so much upon the cost of the fuel as its availability.

Colorado imports 65 percent more energy that it exports, and consumes 35 percent more energy than it produces. The bulk of these energy imports are in the form of oil and gas; the total net imports in 1974 amounted to approximately 8.5 million barrels of oil and nearly 190 billion cu.ft. of natural gas. Since only about 40 percent of the natural gas used in Colorado is produced in the State, any external action that might interrupt the flow of imported gas would have an immediate, deleterious effect upon the State's economy (68 percent of the gas sold to the industrial sector in Colorado is classed as "interruptible").

Figure 10 shows a schematic drawing of a representative industrial coal-burning system. In general, the industrial or commercial firm wishing to utilize such a system would require the services of an established HVAC engineering company. This is principally because the design of the least-costly space heating system requires a complete building evaluation to determine estimated heating losses. The size of the boiler(s), the stoking system, and the storage and waste disposal areas will depend upon the building's heat loss characteristics, as well as the user's requirements as to the desired environment. Consequently, if a total system evaluation is made, it may turn out that the size of the boiler, and hence the acquisition and operating costs, may be reduced simply by altering the expected heat loss

Table 23.--Comparison of costs of residential fuel (1976 data)

Residential Fuel	Cost per Unit (delivered)	Cost per Million Btu	Remarks
Natural Gas	$ 1.47/MCF[1]	$ 1.73	850 Btu/cu ft
Bituminous Coal	45.00/ton	1.87	12,000 Btu/lb
Subbituminous Coal	40.00/ton	2.00	10,000 Btu/lb
No. 2 Fuel Oil	0.47/gal	3.64	131,000 Btu/gal
Propane/LPG	0.35/gal[2]	3.80	92,000 Btu/gal
Electricity	0.035/KWhr	10.25	3,413 Btu/KWhr (delivered)

[1] includes Public Service Company's Gas Cost Adjustment (GCA) factor

[2] Purchase of 250-500 gallons; smaller amounts, e.g. 5 gals, cost upwards of $.60/gal.

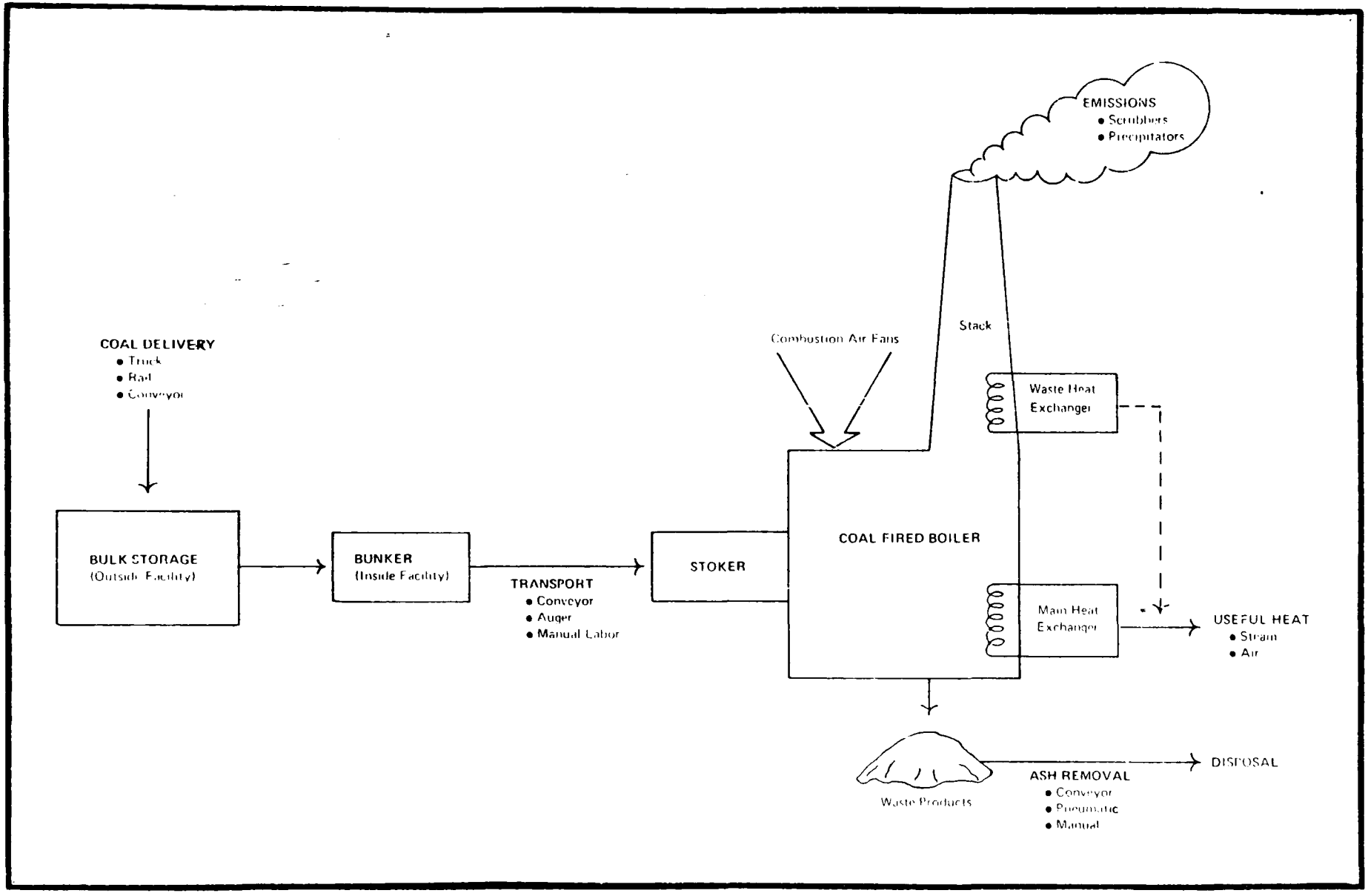

Fig. 10. Representative industrial coal-burning system.

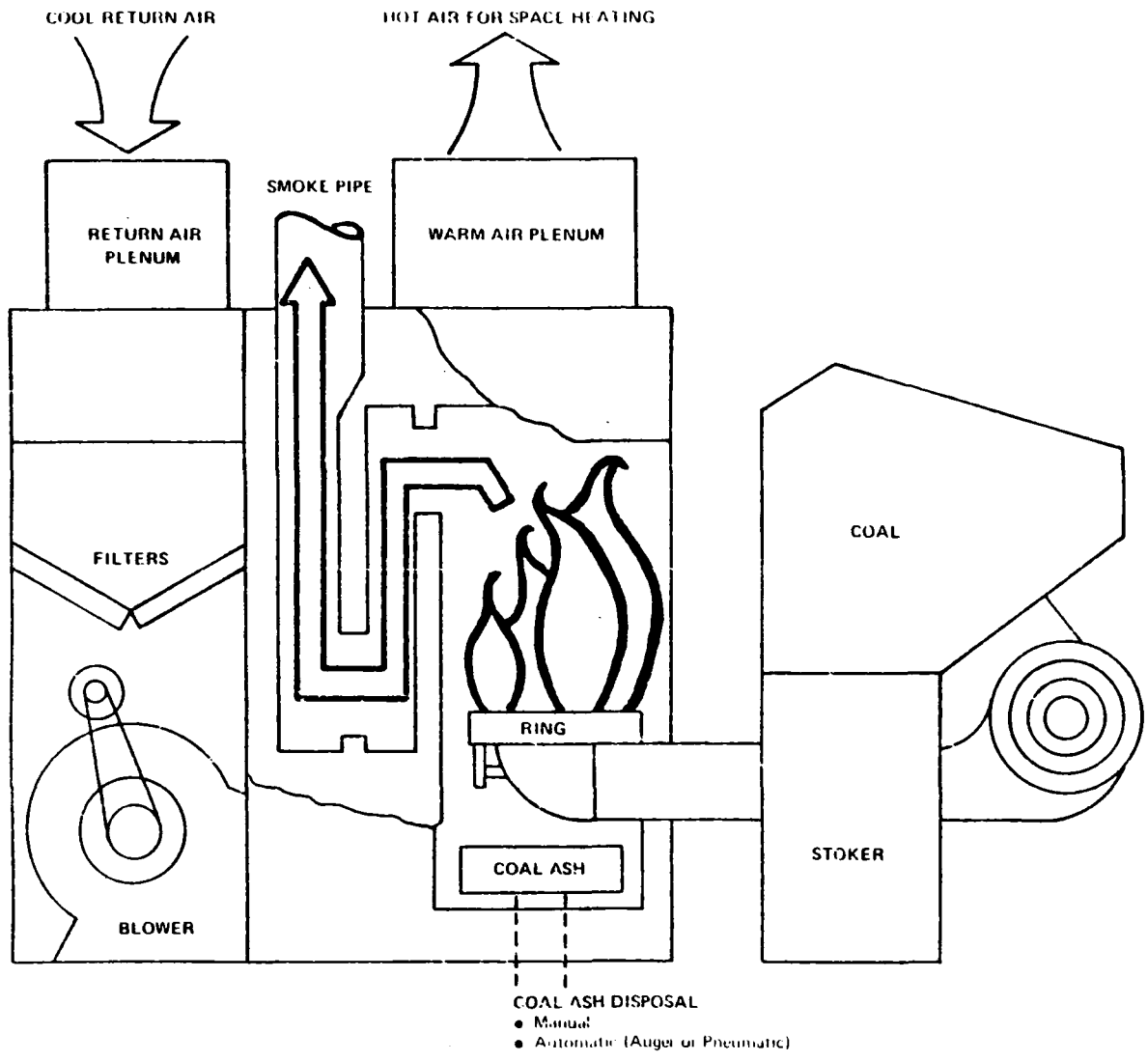

Fig. 11. Representative residential coal-burning system.

by additional insulation, construction of an enclosed entryway, etc. As a result, if the industrial or commercial area to be heated exceeds approximately 15,000 cu. ft., or exceeds approximately 300,000 Btu/hr output, output, a coal-fired space heating system will probably have to be custom designed.

In spite of these obstacles, numerous schools, State and Federal offices, and businesses in Colorado are switching to coal-fired heating systems. These include: the Colorado School for the Deaf and Blind, Colorado State Hospital, the State Penitentiary, numerous secondary schools on the Western Slope, Adolph Coors Company, various Great Western and Holly sugar plants (subsequently closed due to a depressed sugar market), the AMAX Henderson mine molybdenum processing mill, Pueblo Army Depot, and (in the near future) a portion of the Denver Federal Center.

The residential user has a slightly different set of options. He can first contact fireplace dealers who sell coal-burning stoves and fireplaces. However, these generally provide only supplemental, and not primary, heating. The homeowner's second option is to contact one of the three coal furnace manufacturers represented in Denver and elsewhere throughout Colorado. Figure 11 depicts a representative residential coal furnace system. One of the manufacturers, Western Stoker, has an automatic ash removal system, which should alleviate the historical chore of shoveling ashes.

One drawback common to both the industrial and residential coal-burning systems is that only a limited range of different types of coal can be burned efficiently in any particular unit. That is, a furnace or boiler is originally designed to burn a certain type of coal most efficiently, usually based upon the type of coal available in that region. If such a system is designed to burn lignite (6,000-8,000 Btu/lb) and instead bituminous coal is used (12,000-14,000 Btu/lb), there may be ignition or hot-spot problems. Consequently, most of the coal-fired boilers in use on the East Coast are unable to burn low-sulfur, lower-Btu Western coal.

Finally, there are air pollution and waste disposal problems associated with the burning of coal that do not usually occur when using fuel oil, natural gas, or propane. The principal air pollutants of interest are sulfur dioxide and particulate matter (ash) emissions, which can vary greatly according to the type and quantity of coal burned. Residential coal furnaces, with an output rating of less than 200,000 Btu's per hour, do not presently require an emission permit, although it is within the authority of the Colorado Air Pollution Control Commission to do so. However, most commercial and industrial coal-fired systems would require such a permit. Questions regarding the air pollution control devices that might be required for a particular installation in Colorado should be directed to Bill Reefe or Scott Kinsey, Colorado Air Pollution Control Commission (388- 6111, Ext. 371). Disposal of the coal ashes is a lesser problem. Residential users would normally dispose of the coal ashes as they would fireplace ashes, i.e., in a plastic bag for the trash. Industrial and commercial users also would generally dispose of their ashes through a trash service, although some users include their coal ashes with other waste materials in holding ponds. Historically, coal ashes can also be used as landfill, for snow removal in lieu of sand or salt, or as an additive to concrete aggregate.

The need to switch back to coal will necessitate technological advances for new equipment. Such advances will increase competition as the marketplace expands. Even pollution problems can be resolved for a metropolitan Denver residence burning coal - it only takes time and competition.

PART VI. DIRECTORY OF COMPANIES AND CONSULTANTS IN COLORADO COAL

The following directory lists agencies, institutions, companies, and individuals known by the compilers to be involved in one way or another in coal development in Colorado. Personal contacts, the membership roster of The Denver Coal Club, and the Denver Metro Area Telephone Directory were the major sources of this difficult-to-compile information. To our knowledge, this is the first major attempt to compile such a listing in Colorado. We apologize for any inadvertent omissions or errors. These should be addressed to the Colorado Geological Survey. Should funding be made available for updating the Colorado Coal Directory and Source Book, corrected and updated listing of companies and consultants will be a simple matter to generate from our computer/word processor (this will be true for every section of this publication).

This directory is organized as follows:

CATEGORICAL LISTING (Agency, Finance, etc. - see below) (name only)
ALPHABETICAL LISTING (complete name, address, telephone number, contact person, etc.)

CATEGORICAL LISTING -- Definitions:

AGENCY--State or Federal governmental agency in Colorado that is involved with, or has regulatory authority over, coal development.

FINANCE--institutions in Colorado that offer financial services to the coal industry.

CONSULTANTS--companies or individuals with offices in Colorado that offer geologic, engineering, legal, land-use, and planning expertise.

OPERATORS--companies with offices in Colorado that currently are operating, or potentially may operate, coal mines.

SERVICE--companies with offices in Colorado that perform such services as laboratory analysis, drilling and logging, geophysical research, etc.

SUPPLY - companies with offices in Colorado that supply mining equipment, coal-fired heating equipment, retail coal, etc.

AGENCY

Colorado Department of Health
Colorado Department of Highways
Colorado Department of Local Affairs
Colorado Department of Natural Resources
Colorado Energy Research Institute
Colorado Office of Energy Conservation
Colorado Office of State Plan. & Budget.
Colorado West Council of Governments
Energy Research and Development Admin.
Four Corners Regional Commission
Internal Revenue Service
Interstate Commerce Commission
Office of Rural Development
U.S. Army Corps of Engineers
U.S. Bureau of Land Management
U.S. Bureau of Mines
U.S. Department of Agriculture
U.S. Department of Commerce
U.S. Department of Energy
U.S. Department of Labor
U.S. Department of Transportation
U.S. Dept. of Health, Education, & Welfare
U.S. Dept. of Interior
U.S. Environmental Protection Agency
U.S. Geological Survey

CONSULTANTS

3R Corporation
ABS Construction Management Corporation
Ackenheil & Associates Colorado, Inc.
Ahlborg, William T.
Ammeralda Resources
Amuedo and Ivey
Arnex Corporation
Beckner, Jack L., Ph.D.
Behrent Engineering Company
Bentzin, David
Berge Exploration
Bermingham, John R., Attorney
Black & Veatch
Boyd (J. T.) Company
Brusner, A. M.
Bryson, Richard S.
C E Tec
C I T Corporation
Cameron Engineers, Inc.
Centennial Engineering, Inc.
CF & I Engineers, Inc.
CH2M Hill, Inc.
Chen & Associates, Inc.
Chico (Raymundo J.), Inc.
Cobb (William A.) & Associates
Coe, Van Loo & Jaschke, Inc.
Craig (Larry) & Associates
Crescent Engineering Co.
Curtis, Graham R.
D'Appolonia (E.) Consulting Engrs., Inc.
Dames & Moore
Dawson, Nagel, Sherman & Howard, Attys.
Dravo Corporation
Earth Sciences, Inc.
Emling (D. H.) Co.
Energy Resources Development, Inc.
Engineered Products Co.
Engineering Enterprises, Inc.
Envirotech Corp.
Fertig, Claude
Foundatin for Urban & Neighborhood Dev.
Fox (F. M.) & Associates, Inc.
Genge Resources, Inc.
GEOCO, Inc.
Geological Exploration Associates, Ltd.
Gorton, Kenneth A.
Gregory, Arthur C.
Harrison Western Corp.
Helton Engineering, Inc.
Henkle, Jr., William R.
Holland & Hart, Attorneys at Law
Holt, R. D., Consultants
International Mining Consultants, Inc.

CONSULTANTS (Continued)

Intrasearch, Inc.
Johnson, Arthur F.
Kimball, L. Robert, Engineers
Ko (Kenneth C.) & Associates
Kucera & Associates, Inc.
Lord (R. V.) & Associates, Inc.
Macek, Kenneth W.
Main (Charles T.), Inc.
Malmberg (Gary & Associates)
Marketing & Management, Inc.
Mathias, J. Paul
McCurdy, Robert
Miller-Willis Assoc., Corp.
Mountain Minerals, Inc.
Murray, Robert K., Attorney
Nelson, Doug
Nielsen, Merrill L.
North American Mining Consultants, Inc.
Olson (A. Peter) & Associates
Phoenix Resources, Inc.
Polaris Resources, Inc.
Quality Development Associates, Inc.
Remenco Corp.
Resource Exploration International
Resources Engr. & Mgt. Internat., Inc.
Rice, Marek, Holtz & Patterson, Inc.
Robeck, Ray
Robertson (David S.) & Associates, Inc.
Schwendinger Associates, Inc.
Sibert, Edward H.
Sjaastad, Gerald D.
Skelly & Loy
Smith, Fred L.
SRI Community Response of Colorado, Inc.
Stearns-Roger, Inc.
Stratford, Richard R.
Thorne Ecological Institute
URS Company
Van Poolien (H. K.) and Associates, Inc.
VTN Colorado
Wilde, Inc.
Willdan Associates
Woodward-Clyde Consultants
Wright Water Engineers, Inc.

FINANCE

Colorado National Bank
First National Bank Bldg.
Littleton 1st Industrial Bank
United Bank of Denver

OPERATORS

Adolph Coors Company
AGIP Mining Co., Inc.
AMAX Coal Company
Anaconda Company
Anschutz Coal Corporation
Arch Mineral Corp.
Arness-McGriffin Coal Co.
Atlantic Richfield Co. (ARCO)
Bear Coal Co., Inc.
Bendetti (Henry) Coal Company
Bendetti, Louis
Black Hawk Coal Company
Blazer Fuels
Boulder Valley Coal Co.
Brasel & Sims Coal Co.
Burns (R. L.) Corporation
C & F Coal Company
Calder & Company
Cambridge Mining Corporation
Cameo Coal Company
Carbon King Ltd.
Carpine, Josephine
Cedar Canon Coal Company
CF & I Steel Corporation
Chimney Rock Coal Company
Clayton Coal Company
Coal Fuels Corporation
Coal Mining Partners c/o Charles Silengo
Coalby Mining Co.
Colorado Westmoreland, Inc.
Colowyo Coal Co.
Consolidation Coal Co., Western Div.
Delagua Coal Co.
Earth Minerals, Inc.
Empire Energy Corp.
Energy Fuels
Flesch (Ralph) & Son, Inc.
Four Mile Coal Company, Inc.
Freeport Coal Co.
GEC Minerals Inc.
GEX Colorado Co.
Golden Quality Coal Co.
Grace (W. R.) Co.
GRC Exploration Company
Groves (S. J.) & Sons Company

OPERATORS (Continued)

Groves-Calder
H-G Coal Co.
Hastings Mine
Holland & Sons Mining Co.
Homestake Mining Co.
Horner Coal Co.
Ideal Basic Industries
Imperial Coal Co.
Industrial Resources, Inc.
Inex Resources, Inc.
International Engineering Company
Island Creek Coal Sales Co.
Johns-Manville
Kerr Coal Co.
Kerr McGee Corporation
Kyllo, Lyle (Colorado agent)
Limon Fuels c/o Woodward-Clyde Consult.
Lobato, Fidel
Louisiana Land & Exploration
Marathon Oil Company
Massey (A. T.) Coal Co.
McGinley Coal & Energy Co.
Merchants Petroleum Co.
Mid-Continent Coal & Coke Co.
Milner Coal Corp.
Mobil Oil Corporation
Moon Lake Electric Co.
Morgan Coal Company
Morrison-Knudsen Co., Inc.
National King Coal Inc.
Newlin Creek Coal Corp.
Northern Coal Company
Northern Natural Gas Co.
O. C. Mine Co.
Panhandle Eastern Pipeline Co.
Pavlakas & Co.
Peabody Coal Co.
Peacock Coal Co.
Pittsburgh & Midway Coal Mining Co.
Public Service Co. of Oklahoma
Reibold, Paul
Resource Exploration & Mining, Inc.
Roadside Mining Corp.
Rocky Mountain Fuel Co.
Ruby Construction Co., Inc.
Senaca Coal, Ltd.
Sewanee Mining Company
Shell Oil Company Mining Ventures
Sheridan Enterprises
Sigma Mining Co.
Stansbury Coal Company
Sun Coal Co., Inc.
Sunflower Energy Corp.

OPERATORS (Continued)

Sunland Mining Corporation
Sunshine Coal Co.
Texaco Energy Resources Department
Texas Gulf Sulfur Co.
Texas Oil & Gas Co.
Twin Pines Coal Co.
U.S. Energy Corp., Crested Butte, CO.
U.S. Steel Corp.
Upland Industries Corporation
Utah International, Inc.
Weaver, Henry, Pres., O.C. Mine Co.
WESCAR, Inc.
Western Fuel Corp.
Western Fuels Assoc., Inc.
Western Slope Carbon, Inc.
Zapata Colorado Mining Corp.

SERVICE

American Stratigraphic Co.
Anixter Mine & Industrial Specialists
Arrow Drilling Co.
Ashmar Oil Company
Atencio, Andrew J.
Benchmark Mapping Sevices, Inc.
Boyles Bros. Drilling Co.
C T & E Company
CDM/Acculabs
CDM/Limnetics
Coal Age/E & MJ
Colorado Mining Association
Colorado School of Mines Research Inst.
Colorado School of Mines
Core Laboratories, Inc.
Delta Aerial Survey, Inc.
Denver Research Institute
Ecology Consultants, Inc.
Energy Daily
Engineered Products Co.
Frontier Logging Corp.
Gates Engineering Co.
Geoterrex Limited
Halliburton Services
Hawkins Trucking
Hazen Research, Inc.
Intermountain Pipe & Welding
Kendrick Cattle Company
Keyser Coal & Trucking
Management Recruiters
Mountain Empire Publishing, Inc.
Mountain States Employer Council
Mull, Connie
Natural Resources Laboratory

SERVICE (continued)

NUS Corp.
Ortloff Minerals Services Corporation
Prouty, Dick
Rikenbach, Sheble
Rocky Mountain Coal Petrography
Rocky Mountain Energy Summary
Schroeder Brothers Co.
Teton Exploration Drilling Co.
Texas Instruments, Inc.
United Computing Services, Inc.
Unaweep C.C.H. Exploration Co.

SUPPLY

American Coal Sales, Inc.
Austin Powder Company
Boyd (Paul) Coal Company
Bucyrus-Erie
Burl Coal and Ice Company
C & C Sand Company
Coal Country Distributing
Door-Oliver, Inc.
Durango Ornamental Iron
Elk Coal Company Yard
Franktown Feed & Ranch Supply Co.
Gosney Brothers Construction
Hartley & Sons
Kolz Coal Sales
Marion Power Shovel Co.
McCoy Company
McNally-Pittsburgh Mfg. Corp.
Melroe Multi-Wheel
Mesa Feed and Farm Supply
North Monson Co.
Polaris Crane & Equipment Co.
Power Equipment Co.
Rio Grande Co.
Sanchez, Willie
Solid Fuel Systems, Inc.
Standard Coal Co.
Stephens-Adamson
Stevenson, Raymond H.
Stuart (G. H.) Co.
Techna-Flo
Teller Redi-Mix, Inc.
Tepe Corporation
Terex Division - Gen. Motors Corp.
Trans World Energy Ltd.
Twin Mountain Rock Co.
Wagner Equipment Co.
Wagnon & Associates, Inc.
Western Stoker & Mfgr.
Wheelabrator-Frye Inc.

3R Corporation
1221 So. Clarkson, Suite 410
Denver
CO
80210
(303) 778-8780
Dr. Paul J. Epley, President
Consult

ABS Construction Management Corporation
305 West 56th Avenue
Denver
CO
80216
(303) 572-0680
Arthur F. Johnson, P.E.
Consult

Ackenheil & Associates Colorado, Inc.
2090 East 104th Avenue
Denver
CO
80233
(303) 452-9974
David M. Jubenville, V.P.
Consult

Ackenheil & Associates Colorado, Inc.
707 Boltz Dr.
Fort Collins
CO
80521
(303) 493-0182
John Nelson, V.P.
Consult

Adolph Coors Company
Star Route 1, Box 24A
Paonia
CO
81428
(303) 929-5271
Louis Gaspar
Operator

Adolph Coors Company
Golden
CO
80401
(303) 279-6565
Arthur W. Tschannen, Dir. of Energy
Operator

AGIP Mining Co., Inc.
950 17th Street
Denver
CO
80202
(303) 572-8812
John Pascente, Asst. Sec.-Treas.
Operator

Ahlborg, William T.
Denver Club Building
Denver
CO
(303) 629-6207
Consult

AMAX Coal Company
600 South Cherry St., Suite 333
Denver
CO
80222
(303) 320-8300
Reas Madsen, Denver Area Supervisor
Operator

American Coal Sales, Inc.
1325 W. 9th Avenue
Denver
CO
(303) 573-1210
(coal dealer)
Supply

American Stratigraphic Co.
6280 E. 39th Avenue
Denver
CO
80207
(303) 399-2746
John Greene, Stratigrapher
Service

Ammeralda Resources
7420 N. Dakin, Suite 302 L
Denver
CO
80221
(303) 429-9240
John A. Hartley, Consulting Geologist
Consult

Amuedo and Ivey
155 S. Madison St., Suite 230
Denver
CO
80209
(303) 321-0242
Curtis L. Amuedo, Partner
John Ivey, Partner
Consult

Anaconda Company
660 Bannock
Denver
CO
(303) 534-7555
Terence L. Britt, Mgr., Fuels Explor.
Operator

Anixter Mine & Industrial Specialists
P.O. Box 7260
5040 E. 41st
Denver
CO
80207
(303) 320-4181
Service

Anschutz Coal Corporation
1110 Denver Club Bldg.
518 17th Street
Denver
CO
80202
(303) 573-5665
Phillip T. Anschutz, Prop.
Operator

Anschutz Coal Corporation
P.O. Box 980
Carbondale
CO
81623
(303) 963-3440
Jim Morris, Mine Mgr. (Thompson Crk 2&3
Norm Hinchman, Health & Safety
Operator

Arch Mineral Corp.
8685 E. Easter Avenue
Englewood
CO
80110
Cleatus France, Mgr.
Operator

Arness-McGriffin Coal Co.
1139 Main Avenue
Durango
CO
Ken McGriffen, Pres.
(Coal Gulch Mine)
Operator

Arnex Corporation
2 Inverness Drive East
Englewood
CO
80237
773-3588
Arnold D. Cunningham, President
(Consulting Geologists)
Consult

Arrow Drilling Co.
8020 W. 45th Place
Lakewood
CO
(303) 421-8766
Paul R. Berglund
Service

Ashmar Oil Company
244 Colorado Boulevard
Denver
CO
80206
(303) 322-4967
John A. Howell, V.P.
Service

Atencio, Andrew J.
822 Midland Savings Bldg.
444 17th Street
Denver
CO
80202
(303) 623-9113
Service

Atlantic Richfield Co. (ARCO)
1500 Security Life Bldg.
Denver
CO
80202
(303) 573-3518
Ernest Kuchta, Mgr., underground mining
Gerald Rupp (573-3690) (Mt. Gunnison #1)
Operator

Austin Powder Company
4783 South Willow
Denver
CO
80237
(303) 773-1983
Raymond H. Stevenson, Western Reg. Mgr.
Supply

Bear Coal Co., Inc.
Bear Mine
Somerset
CO
81434
(303) 929-5775
William A. Bear, Supt.
David Hoer, Lawrence Hinkle
Operator

Beckner, Jack L., Ph.D.
29783 Spruce Road
Evergreen
CO
(303) 674-7788
Consult

Behrent Engineering Company
2680 18th Street
Denver
CO
80211
(303) 433-2578
Robert V. Behrent, President
Consult

Benchmark Mapping Services, Inc.
1582 South Parker Road, #209
Denver
CO
80231
(303) 751-9011
Glenn R. Hardy, Manager
Service

Bendetti (Henry) Coal Company
1117 Grand Avenue
Glenwood Springs
CO
81601
(303) 945-5797
Henry Bendetti, Owner-Operator
(NuGap Mine)
Operator

Bendetti, Louis
P.O. Box 156
Silt
CO
81652
(303) 876-2816
Louis Bendetti, Owner
(East Side Mine)
Operator

Bentzin, David
5844 South Prescott Street
Littleton
CO
80120
(303) 794-8371
Consult

Berge Exploration
7100 North Broadway Street, #2-L
Denver
CO
80221
(303) 426-1086
John S. Berge, President
Consult

Bermingham, John R., Attorney
University Building
Denver
CO
(303) 572-7720
Consult

Black & Veatch
12075 E. 45th Avenue, Suite 333
Denver
CO
80239
(303) 371-1120
Dwight Sayles, Manager
Consult

Black Hawk Coal Company
P.O. Box 1555
Grand Junction
CO
81501
(303) 243-8473
Mike Cantrell
(Munger Canyon Mine)
Operator

Blazer Fuels
P.O. Box 103
Louisville
CO
80027
(303) 665-4254
James D. Tatum, President
(Blazer Mine)
Operator

Boulder Valley Coal Co.
105 Fillmore Street
Denver
CO
80206
William H. Peltier
Operator

Boyd (J. T.) Company
1860 Lincoln St., Suite 1028
Lincoln Tower
Denver
CO
80203
(303) 861-4339
John T. Boyd, Pres.
Consult

Boyd (Paul) Coal Company
725 2nd Street
Ouray
CO
(303) 325-4491
(Coal and coke dealer)
Supply

Boyles Bros. Drilling Co.
15865 West 5th Avenue
Golden
CO
80401
(303) 279-7913
Carl High, District Manager
Service

Brasel & Sims Coal Co.
Box 956
Craig
CO
81625
(303) 824-9228
Harvey Branson, Wms. Fork #2 mgr.
James Zubal, gen. mgr. & supt.(824-4167)
Operator

Bruner, A. M.
2160 Scuth Estes Street
Denver
CO
80227
(303) 985-7540
Al M. Bruner, Consulting Geologist
Consult

Bryson, Richard S.
777 S. Yarrow
Suite 201
Lakewood
CO
80226
(303) 988-2677
Consult

Bucyrus-Erie
3855 South Monaco Pkwy, #107
Denver
CO
80237
(303) 771-8773
Richard Hemmelgarn, Sales Rep.
Supply

Burl Coal and Ice Company
2607 Glenarm Place
Denver
CO
(303) 892-1061
Supply

Burns (R. L.) Corporation
380 W. 6th Avenue
Broomfield
CO
(303) 469-0274
Thomas H. Cole, V.P.
Operator

C & C Sand Company
118 Buchanan
Colorado Springs
CO
(303) 473-7945
Supply

C & F Coal Company
Rt. 1, Box 438-A
Durango
CO
81301
(303) 259-1290
Milton Fuller, Pres.
(Hay Gulch)
Operator

C E Tec
7409 South Alton Court
Denver
CO
(303) 770-6901
Consult

C E Tech
102 North Cascade, Suite 202
Colorado Springs
CO
80903
(303) 475-7660
Paul Gilbert, Director
Consult

C I T Corporation
Box 22394
1385 South Colorado Blvd.
Denver
CO
80222
(303) 758-7181
C.J. Murray, Division Head
Consult

C T & E Company
Western Division
10775 E. 51st Avenue
Denver
CO
80239
(303) 373-4772
Lloyd W. Taylor, Div. Mgr.
Service

C T & E Company
Instrument Analysis Division
14335 West 44th Avenue
Golden
CO
80401
(303) 278-9521
Service

Calder & Company
Graden Bldg., Suite 205
Durango
CO
(303) 259-1290
Milton Fuller
(Hay Gulch, No-name Strip)
Operator

Cambridge Mining Corporation
P.O. Box W
Palisade
CO
81526
(303) 464-7679
Wallace Brown, Mine Supt.
Operator

Cameo Coal Company
Subsidiary of GEX Colorado Co.
P.O. Box W
Palisade
CO
81526
(303) 464-7679
Wallace Brown
(Cameo Mine)
Operator

Cameron Engineers, Inc.
1315 So. Clarkson
Denver
CO
80210
(303) 777-2525
John Hand, Vice President
(Watkins-Lignite Mine, Station Crk. Lig
Consult

Carbon King Ltd.
2nd and Union
Lakewood
CO
80401
(303) 989-1740
Tom Young, attorney
(Sunlight Mine)
Operator

Carpine, Josephine
1110 Myrtle Lane
Canon City
CO
81212
(303) 275-5512
(Newlin Creek Mine, Twin Pines Mine)
Operator

CDM/Acculabs
11485 W. 48th Avenue
Wheatridge
CO
80033
(303) 423-2766
Service

CDM/Limnetics
11485 W. 48th Avenue
Wheatridge
CO
80033
(303) 422-0469
Clark G. Musgrove, V.P.
Service

Cedar Canon Coal Company
Rt 1, Box 113
Florence
CO
81226
(303) 784-3511
C. Alvidrez, Jr., Owner
(Cedar Canon Strip)
Operator

Centennial Engineering, Inc.
11445 W. 48th Avenue
Denver
CO
80033
(303) 420-0220
George Koonsman, President
Richard F. Sparlin, P.E.
Consult

CF & I Engineers, Inc.
Subsidiary CF & I Steel
3309 Blake Street
Denver
CO
80205
(303) 623-0211
Ray Hammond, Pres. & Gen. Mgr.
Consult

CF & I Steel Corporation
P.O. Box 316
Pueblo
CO
81002
(303) 561-6622
J. N. Matheson, Mgr. of Mining
(Allen, Maxwell mines)
Operator

CF & I Steel Corporation
Weston
CO
81091
(303) 868-2261
Allen mine 868-2261
Maxwell mine 868-3372
Operator

CH2M Hill, Inc.
12000 East 47th
Denver
CO
80239
(303) 371-6470
Kenneth D. Bielman, V.P.
Consult

Chen & Associates, Inc.
2803 North El Paso
Colorado Springs
CO
(303) 623-7301
Richard C. Hepworth, Chief Engineer
Consult

Chico (Raymundo J.), Inc.
P.O. Box 111
Republic Building, Suite 710
1612 Tremont Place
Denver
CO
80202
(303) 534-2010
Ray Chico
(Minerals Exploration)
Consult

Chimney Rock Coal Company
410 Old Taos Highway
Santa Fe
NM
87501
(505) 988-2845
James Miller, President
(Martinez Mine)
Operator

Chimney Rock Coal Company
Star Route 3, Box 52A
Pagosa Springs
CO
81147
(303) 968-5903
J. Miller, Pres., Philip Welsh, Supt.
(Martinez Mine)
Operator

Clayton Coal Company
274-A South Monaco Parkway
Denver
CO
80222
Operator

Coal Age/E & MJ
123 Speer Blvd., #400
Denver
CO
80203
(303) 837-1010
Dan Jackson, Western Editor
Service

Coal Country Distributing
789 Clarkson
Denver
CO
(303)832-7384
Supply

Coal Fuels Corporation
Los Lagos Ranch, Inc.
Rollinsville
CO
80474
(303) 258-3354
Alfred G. Hoyl, President
Dawson Unit proposal
Operator

Coal Mining Partners c/o Charles Silengo
598 Grand Valley Dr.
Grand Junction
CO
81501
(Anchor-Tresner Unit)
Operator

Coalby Mining Co.
P.O. Box 167, Rt. 1
Cedaredge
CO
81413
(303) 856-3821
Joe E. Belden, owner and operator
(Red Canyon #1 Mine)
Operator

Cobb (William A.) & Associates
7477 Garland St.
Arvada
CO
80005
(303) 423-5921
William A. Cobb
Consult

Coe Van Loo & Jaschke, Inc.
730 W. Hampden St. 300
Englewood
CO
80110
(303) 761-5142
Lyman H. Frazier, Principal
Consult

Colorado Department of Health
Air Pollution Control Division
4210 E. 11th Avenue
Denver
CO
80220
303-388-6111 x241
William M. Auberle, Director
Agency

Colorado Department of Health
Occupational & Radiological Health Div.
4210 E. 11th Avenue
Denver
CO
80220
303-388-6111 x246
Albert J. Hazle, Director
Agency

Colorado Department of Health
Water Quality Control Div.
4210 E. 11th Avenue
Denver
CO
80220
303-388-6111 x231
Frank Rozich, Director
Agency

Colorado Department of Highways
4201 East Arkansas Avenue
Denver
CO
80222
303-757-9011
Jack Kinstlinger, Executive Director
Agency

Colorado Department of Local Affairs
Division of Commerce and Development
Socio-economic Impact Coordinator
1313 Sherman Street, Room 518
Denver
CO
80203
(303) 839-2674
Steve Schmitz, coordinator
John Fernandez, West slope agent
Agency

Colorado Department of Local Affairs
Western Office
1000 N. 9th
Grand Junction
CO
(303) 243-8215
George "Skip" Grkovic, Assoc. Dir.
Agency

Colorado Department of Local Affairs
Division of Planning
1313 Sherman, Room 520
Denver
CO
80203
(303) 839-2351
Phil Schmuck
208 water quality, clearinghouse, demog
Agency

Colorado Department of Local Affairs
1313 Sherman, Room 518
Denver
CO
80203
(303) 839-2771
Paula Herzmark, Exec. Dir.
Agency

Colorado Department of Local Affairs
Division of Commerce and Development
1313 Sherman, Room 500
Denver
CO
80203
(303) 839-2205
Office of Rural Development
Four Corners Regional Commission
Agency

Colorado Department of Local Affairs
Division of Housing
1313 Sherman, Room 523
Denver
CO
80203
(303) 839-2033
Building Codes
Housing Development Grants & Assistance
Agency

Colorado Department of Local Affairs
Division of Local Government
1313 Sherman, Room 523
Denver
CO
80203
(303) 839-2156
Programs, grants, research, planning, purchasing
Agency

Colorado Dept. of Labor and Employment
Division of Labor
1313 Sherman, Room 323
Denver
CO
80203
303-839-3596
Ms. Juereta P. Smith, Director
Agency

Colorado Dept. of Natural Resources
1313 Sherman St., Room 718
Denver
CO
80203
(303) 839-3311
Harris Sherman, Executive Director
Agency

Colorado Dept. of Natural Resources
Colorado Div. of Mines
1313 Sherman, Room 719
Denver
CO
80203
(303) 839-3401
Norman Blake, Director
Agency

Colorado Dept. of Natural Resources
Colorado Geological Survey
1313 Sherman Street, Room 715
Denver
CO
80203
(303) 839-2611
John W. Rold, Director
Agency

Colorado Dept. of Natural Resources
Ground Water Commission
1313 Sherman, Room 818
Denver
CO
80203
303-839-3581
C. J. Kuiper, State Engineer
Agency

Colorado Dept. of Natural Resources
Mined Land Reclamation Section
1313 Sherman, Room 723
Denver
CO
80203
303-839-3567
C. C. McCall, Director
Agency

Colorado Dept. of Natural Resources
Oil and Gas Conservation Commission
1313 Sherman, Room 721
Denver
CO
80203
303-839-3531
Douglas V. Rogers, Director
Agency

Colorado Dept. of Natural Resources
Soil Conservation Board
1313 Sherman, Room 618A
Denver
CO
80203
303-839-3351
James L. Johnson, Chairman
Kenneth Kirkpatrick, Director
Agency

Colorado Dept. of Natural Resources
Water Conservation Board
1313 Sherman, Room 823
Denver
CO
80203
303-839-3441
Felix L. Sparks, Director
Agency

Colorado Dept. of Natural Resources
Division of Parks & Outdoor Recreation
1313 Sherman, Room 618
Denver
CO
80203
303-839-3437
George O'Malley, Director
Agency

Colorado Dept. of Natural Resources
Division of Water Resources
1313 Sherman, Room 818
Denver
CO
80203
(303) 839-3581
Clarence Kuiper, State Engineer
Agency

Colorado Dept. of Natural Resources
Division of Wildlife
6060 Broadway
Denver
CO
80216
(303) 825-1192
Jack Grieb, Director
Agency

Colorado Energy Research Institute
2221 East St.
Golden
CO
80401
(303) 279-2881
Martin D. Robbins, Director
Agency

Colorado Mining Association
1515 Cleveland Place
Denver
CO
(303) 534-1181
David R. Cole, Director
Service

Colorado National Bank
Natural Resources Dept.
Box 5168
Denver
CO
80217
(303) 893-1862
John H. Ferry, V.P. Natural Resources
Finance

Colorado Office of Energy Conservation
1410 Grant Street, Suite B-104
Denver
CO
(303) 839-2507
Buie Seawell, Dir.
Agency

Colorado Office of State Plan. & Budget.
Economic Research Section
617 State Services Building
Denver
CO
80203
839-3386
Wilson Kendall
Agency

Colorado School of Mines Research Inst.
Box 112
Golden
CO
80401
(303) 279-2581
James M. Link, Director Mining Division
James E. Keenan, Coal
Service

Colorado School of Mines
Office of Research Services
Golden
CO
80401
303/279-0300 x417
John O. Golden
Service

Colorado West Council of Governments
P.O. Box 351
Rifle
CO
81650
(303) 625-1723
Martin Dicker
Agency

Colorado Westmoreland, Inc.
P.O. Box E
Paonia
CO
81428
(303) 527-4135
(Orchard Valley Mine)
Operator

Colowyo Coal Co.
W.R. Grace, Hanna Mining Co., co-venture
P.O. Box 775
Craig
CO
81625
(303) 824-4456
Chas. Margolf, Western Ops. Director
Ira McKeever, mine mgr. (Colowyo Mine)
Operator

Consolidation Coal Co., Western Div.
2 Inverness Dr. East
Englewood
CO
(303) 770-1600
Joseph Q. Berta, V.P. Western Region
Operator

Consolidation Coal Co., Exploration
5889 S. Syracuse Circle
Denver
CO
(303) 770-3100
Operator

Core Laboratories, Inc.
Metropolitan Bldg.
Denver
CO
80202
(303) 825-0259
James D. Harris, Jr., V.P.,Western Sales
Service

Craig (Larry) & Associates
2255 S. Wadsworth Blvd.
Denver
CO
(303) 988-1440
Consult

Crescent Engineering Co.
4155 E. Jewell, Suite 206
Denver
CO
80222
(303) 759-1703
I. Jensen, Vice President
Consult

Curtis, Graham R.
1405 Curtis Street
Denver
CO
80202
(303) 572-1648
Gold Cup Exploration
Consult

D'Appolonia (E.) Consulting Engrs., Inc.
Rocky Mountain Office
7400 South Alton Court
Denver
CO
80237
(303) 771-3464
Consult

Dames & Moore
605 Parfet Street
Denver
CO
80215
(303) 232-6262
Gary Melickian, Partner
Richard Brittain, Senior Eng., Partner
Consult

Dawson, Nagel, Sherman & Howard, Attys.
633 17th St., Suite 2900
Denver
CO
80202
(303) 893-2900
Jack M. Merritts, Attorney
Paul Schlauch,Dept.Coordinator,Nat. Res.
Consult

Delagua Coal Co.
P.O. Box 405
Trinidad
CO
81082
(303) 399-7083
Charles Wilkins, CPA
(Delagua Mine)
Operator

Delta Aerial Surveys, Inc.
2243 W. 32nd Avenue
Denver
CO
80211
(303) 433-1048
Mel E. Erfle, P.E. & L.S.
Service

Denver Research Institute
University of Denver
2050 East Iliff Avenue
Denver
CO
80210
(303) 753-2611
Graham C. Taylor
(Industrial Economics Division)
Service

Door-Oliver, Inc.
P.O. Box 149
2916 South Fox Street
Englewood
CO
80110
(303) 781-6635
Roy Engstrom, Resident Mgr.
(Equipment Sales)
Supply

Dravo Corporation
1250 14th Street
Denver
CO
(303) 893-4500
David E. Clement, Mgr., Mining Services
Engineering Office (629-0122)
Consult

Durango Ornamental Iron
1502 Main Avenue
Durango
CO
81301
(303) 247-0746
(coal dealer)
Supply

Earth Minerals, Inc.
Suite 130-C
2460 West 26th Avenue
Denver
CO
80211
(303) 455-7286
David C. Jones, V.P., Minerals Explor.
Operator

Earth Sciences, Inc.
Highway 93 North
Golden
CO
80401
(303) 279-7641
Mahmood H. Rana, Vice Pres.-Mining
Consult

Ecology Consultants, Inc.
P.O. Box 2105
Ft. Collins
CO
80522
(303) 493-8878
Russell T. Moore, Mining Anal. & Reclam.
Service

Elk Coal Company Yard
1325 W. 9th Avenue
Denver
CO
88020
(303) 573-1210
Chuck Speltz
Supply

Emling (D. H.) Co.
5500 South Syracuse Circle
Woodside Plaza I, Suite 118
Englewood
CO
80110
(303) 779-9448
B.E. Russell, Vice President
Dale H. Emling, President
Consult

Empire Energy Corp.
P.O. Box 68
Craig
CO
81625
(303) 824-9467
Peter Epp, Ops. (Wms. Fork #2, Eagle #5,
Steven Self, Div. Chief Eng.
Operator

Empire Energy Corp.
3333 Quebec St., Suite 3000
Denver
CO
80207
(303) 388-4401
Steven Cherry, Marketing
(Wms. Fork #2, Eagle #5, #9, #6, #7)
Operator

Energy Daily
P.O. Box 638
301 Vallejo
Westminster
CO
80030
(303) 744-1429
Jerry Brown, Writer
Service

Energy Fuels
P.O. Box G
Steamboat Springs
CO
80477
(303) 893-0845
Jay Ferguson, Mining Eng. (893-2234)
(Energy Strip #1, #2, #3)
Operator

Energy Fuels
3 Park Central
Suite 445
1515 Arapahoe Street
Denver
CO
80202
(303) 623-8317
Ron Jones, Marketing (623-8317)
(Energy Strips #1, #2, #3)
Operator

Energy Research and Development Admin.
Rocky Flats Office
P.O. Box 464
Golden
CO
80401
(303) 497-7000
William Lamb, Director
Agency

Energy Resources Development, Inc.
41 S. Eaton Court
Lakewood
CO
80226
(303) 232-5402
Leslie R. Lamont, President
Consult

Engineered Products Co.
1204 W. Cedar Ave.
Denver
CO
80223
(303) 777-4471
William R. Moore, Vice President
(Equipment Reps)
Consult

Engineering Enterprises, Inc.
2124 South Birch Street
Denver
CO
80222
(303) 759-5707
Edward C. Weakly
(Hydrogeology)
Consult

Envirotech Corp.
12952 W. Virginia Ave.
Lakewood
CO
80228
(303) 936-8211
James L. Womack
Consult

Fertig, Claude
13065 W. Ohio Avenue
Lakewood
CO
80228
(303) 986-1342
(Mining Consultant)
Consult

First National Bank Bldg.
621 17th St.
Denver
CO
80202
(303) 892-9560
Jack N. Greer, President of Greer Coal
Finance

Flesch (Ralph) & Son, Inc.
313 Main, Box 517
Walden
CO
80480
(303) 723-4737
(Canadian Strip Mine)
Operator

Foundation for Urban & Neighborhood Dev.
2653 W. 32nd Avenue
Denver
CO
(303) 433-7163
James A. Kent, Sociologist, Lawyer
(Social & Economic Assessments)
Consult

Four Corners Regional Commission
1313 Sherman, Room 500
Denver
CO
80203
(303) 839-2632
Ivo Roospold
(Funding)
Agency

Four Mile Coal Company, Inc.
355 County Rd. 132
Glenwood Springs
CO
81601
(303) 945-5154
C.A. Betz, Oper.
Operator

Fox (F. M.) & Associates, Inc.
4765 Independence St.
Wheatridge
CO
80033
(303) 424-5578
William Y. Klett, Project Geologist
Consult

Franktown Feed & Ranch Supply Co.
P.O. Box 68
Franktown
CO
80116
(303) 688-3062
Supply

Freeport Coal Co.
1600 Broadway, Room 1720
Denver
CO
80202
(303) 861-7032
R. W. Stewart
(Lorencito Mine)
Operator

Frontier Logging Corp.
11248 Dillon Rd.
Box 642
Broomfield
CO
80020
(303) 469-4261
W.A. "Bill" Linton, Pres.
Service

Gates Engineering Co.
1780 S. Bellaire, Suite 801
Denver
CO
80222
(303) 758-9290
Miles E. Grosvenor, V.P. Western Ops.
Service

GEC Minerals Inc.
P.O. Box 225
Florence
CO
81226
(303) 784-6891
Dean McKinnon, foreman
(Black Diamond & GEC Strips)
Operator

Genge Resources, Inc.
570 West 44th Avenue
Denver
CO
80216
(303) 433-8777
John K. Beumee, Exec. V.P.
Consult

GEOCO, Inc.
12096 W. 50th Place
Wheat Ridge
CO
80033
(303) 422-9112
Bob Brown, President
Consult

Geological Exploration Associates, Ltd.
P. O. Box 962
Golden
CO
80401
(303) 674-5794
Karl R. Newman
(Stratigraphic Palynology)
Consult

Geoterrex Limited
3 Park Central, Suite 526
1515 Arapahoe
Denver
CO
80202
(303) 571-1146
Ron Bell, Geophysical Contractor
Service

GEX Colorado Co.
P.O. Box W
Palisade
CO
81526
(303) 464-7679
(Roadside and Cameo Mines)
Operator

Golden Quality Coal Co.
1403 Birch
Canon City
CO
81212
(303) 275-3700
Tony or Ralph Carestia
Golden Quality #5 Mine)
Operator

Gorton, Kenneth A.
13905 Braun Rd.
Golden
CO
80401
(303) 279-1522
Consult

Gosney Brothers Construction
East of Bayfield, P.O. Box 256
Bayfield
CO
81122
(303) 884-9453
Supply

Grace (W. R.) Co.
3333 Quebec St., Suite 8800
Denver
CO
80207
(303) 399-0779
Charles Margolf, Western Coal Ops. Dir.
(Colowyo Mine)
Operator

GRC Exploration Company
4643 Wadsworth, Suite D
Wheatridge
CO
80033
(303) 422-6707
C.R. Tatman, Mgr. Western Coal
Operator

Gregory, Arthur C.
1212 Denver Club Bldg.
Denver
CO
80202
(303) 629-5179
(Lawyer)
Consult

Groves (S. J.) & Sons Company
1780 South Bellaire, Suite 301
Denver
CO
80222
303/753-1012
Mike Schroder (No-name Strip Mine)
(Contractors and Engineers)
Operator

Groves-Calder
P.O. Box 410
See Calder & Company (Colorado Springs)
See S. J. Groves & Sons Co. (Denver)
Walsenburg
CO
81089
(303) 738-1830
Bob Mapes (Denver 753-1012)
(No-Name Strip)
Operator

H-G Coal Co.
W.R. Grace Co., Hanna Mining Co., gen. p
3333 Quebec St.
Denver
CO
80207
(303) 399-0779
Charles Margolf, Director
(Hayden Gulch Mine)
Operator

Halliburton Services
Suite 400
1600 Broadway
Denver
CO
80202
(303) 572-9125
E. Dale Davidson, Regional Serv. Mgr.
(Sales representatives)
Service

Harrison Western Corp.
1208 Quail Street
Denver
CO
80215
(303) 234-0273
John L. Paynich, Mgr. Special Accounts
(Mining Engrs., Underground Structures)
Consult

Hartley & Sons
1006 S. 25th
Colorado Springs
CO
80302
(303) 632-5368
(Coal and Coke Dealer)
Supply

Hastings Mine
7010 Burnt Mill Road So.
Beulah
CO
81023
(303) 564-6684
Robert M. and Imogene Hastings
(Hastings Mine)
Operator

Hawkins Trucking
P.O. Box 542
Pagosa Springs
CO
81147
(303) 968-2280
Service

Hazen Research, Inc.
4601 Indiana St.
Golden
CO
80401
(303) 279-4501
Dr. James K. Kindig, Mgr. coal activity
Service

Helton Engineering, Inc.
Suite 616 Metropolitan Bldg.
1612 Court Place
Denver
CO
80202
(303) 571-1026
William R. Goodier, V.P.
Consult

Henkle, Jr., William R.
8525 E. Hampden
Suite 719
Denver
CO
80231
(303) 751-4261
William R. Henkle, Jr.
(Consulting Geologist)
Consult

Hodge Coal Company
1425 S. Steele St.
Denver
CO
80210
(303) 733-6803
T.M. Steele, Manager
Supply

Holland & Hart, Attorneys at Law
730 17th St., Suite 500
Denver
CO
80202
(303) 292-9200
Willaim Embree, Senior Partner
Consult

Holland & Sons Mining Co.
P.O. Box 243
Naturita
CO
81442
(303) 865-2673
(Elder Mine)
Operator

Holt, R. D., Consultants
3365 S. Bellaire
Denver
CO
80222
(303) 756-1819
Richard D. Holt, Manager
Consult

Homestake Mining Co.
7625 West 5th Ave.
Lakewood
CO
80226
(303) 238-6459
Robert M. Steele, Dir. Fossil Fuels
Operator

Horner Coal Co.
Box 20218, Montclair Station
Denver
CO
80220
(303) 377-0267
Morris Replin
(Healey Strip, Jewell Strip Mines)
Operator

Ideal Basic Industries
Box 8789
Denver
CO
80201
(303) 623-5661
Albert T. Janssen, Mgr. Coal Development
Operator

Imperial Coal Co.
3747 Weld County Rd. No. 8
Erie
CO
80516
(303) 828-3283
Charles Reese, Supt. (Eagle, Lincoln Min
Geo. Brannan, Pres.
Operator

Imperial Coal Co.
1010 Western Federal Savings Bldg.
Denver
CO
(303) 837-8355
(Lincoln Mine)
Operator

Industrial Resources, Inc.
11011 W. 6th Ave., Suite 301
Denver
CO
80215
(303) 232-2942
Edward C. Rosar, V.P.
Operator

Inex Resources, Inc.
7475 West Fifth Avenue
Lakewood
CO
80226
(303) 233-4639
William S. Price, V. Pres. - Gen. Mgr.
Coal Processing
Operator

Intermountain Pipe & Welding
70 West 6th Ave.
Denver
CO
80204
(303) 623-5261
Ivyl Kenning, District Manager
Service

Internal Revenue Service
Regional Offices
1050 17th
Denver
CO
80265
(303) 837-4357
George Young, Assistant Regional Council
Agency

International Engineering Company
(A Morrison Knudsen Company)
1777 So. Bellaire St., Suite 100
Denver
CO
80222
(303) 757-8586
Joseph L. Jordan, Principal Engineer
Operator

International Mining Consultants, Inc.
P.O. Box 1066
Boulder
CO
80306
(303) 443-7196
William G. Freeman, President
Consult

Interstate Commerce Commission
Federal Building
Denver
CO
(303) 837-3162
Agency

Intrasearch, Inc.
1600 Ogden Street
Denver
CO
80218
(303) 832-8735
Eugene M. Shearer, President
Consult

Island Creek Coal Sales Co.
8301 East Prentice Ave.
Englewood
CO
80110
(303) 770-6021
John H. Combes, Western Sales Manager
Operator

Johns-Manville
Greenwood Plaza
Denver
CO
80217
(303) 770-1000
Frederic L. Kadey, Jr., Exploration Mgr.
Operator

Johnson, Arthur F.
240 Fox Dr.
Boulder
CO
80303
(303) 594-4577
Mining Engineer
Consult

Kendrick Cattle Company
3190 So. Monroe St.
Denver
CO
80210
(303) 757-3600
Paul M. Hoff, Jr., General Partner
Leasing
Service

Kerr Coal Co.
P.O. Box 6
Walden
CO
80480
(303) 723-8287
W. M. Kerr, Pres.
(Marr Strip #1 Mine)
Operator

Kerr McGee Corporation
Kerr McGee Center
North Walker
Oklahoma City
OK
73125
(405) 236-1313
Frank A. McPherson
Operator

Keyser Coal & Trucking
601 11
Greeley
CO
80631
(303) 352-5957
Supply

Kimball, L. Robert, Engineers
1805 S. Bellaire, Suite 505
Denver
CO
80222
(303) 756-3304
J. A. Lydic, Branch Manager
Consult

Ko (Kenneth C.) & Associates
6911 So. Yosemite St.
Englewood
CO
80110
(303) 773-1702
(Engineering)
Consult

Kolz Coal Sales
6th Olathe
Olathe
CO
81425
(303) 323-5794
(coal dealer)
Supply

Kucera & Associates, Inc.
4690 N. Monaco
Denver
CO
80216
(303) 388-9289
Charles V. Guy, Branch Manager
Consult

Kyllo, Lyle (Colorado agent)
84 Montrose Dr.
Montrose
CO
81401
Quinn Development Co.,St. Clairsville,OH
(Tomahawk Strip Mine)
Operator

Limon Fuels c/o Woodward-Clyde Consult.
2909 W. 7th Ave.
Denver
CO
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Jack Lawrence (604-627-7156)
(Limon Strip)
Operator

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1109 W. Littleton Blvd.
Littleton
CO
80120
(303) 794-4221
Wayne Bader, Loan Officer
Finance

Lobato, Fidel
P.O. Box 1425
Durango
CO
81301
(303) 247-0058
Bob Lobato (Denver)
(Blue Flame Mine)
Operator

Lord (R. V.) & Associates, Inc.
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3250 Walnut St.
Boulder
CO
80306
(303) 443-0413
R. V. Lord, President
Consult

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1600 Broadway, Suite 2340
Denver
CO
80202
(303) 893-1060
Robert T. Sellars, Mgr. of Exploration
Operator

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Littleton
CO
80161
(303) 770-7700
(ext. 417)
Project Engineer
Consult

Main (Charles T.), Inc.
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Denver
CO
80224
(303) 758-4756
J. W. Willey, Proj. Management Engineer
Consult

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Denver
CO
80210
(303) 777-5411
Gary Malmberg
Louise Dawson
Consult

Marathon Oil Company
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Littleton
CO
80120
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Soma Kurtis, Mgr., Refining & Marketing
Operator

Marion Power Shovel Co.
14975 E. Radcliff Dr.
Denver
CO
80232
(303) 755-4206
Doug Ingram, Regional Sales Manager
Supply

Marketing & Management, Inc.
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Broomfield
CO
80020
(303) 469-3331
Jack Walburn, Gen. Mgr.
Consult

Massey (A. T.) Coal Co.
1536 Cole Blvd., Denver West Office Park
Denver
CO
80401
(Meadows #1 Strip Mine)
Operator

Mathias, J. Paul
8871 E. Easter Pl.
Englewood
CO
80110
(303) 771-2854
(Engineer)
Consult

McCoy Company
6000 Dahlia Street
Denver
CO
80217
(303) 288-2621
Gary Kemp
(Equip. Sales)
Supply

McCurdy, Robert
P.O. Box 2186
Littleton
CO
80161
(Lawyer)
Consult

McGinley Coal & Energy Co.
5670 Evans Avenue
Denver
CO
80222
(303) 757-6441
(McGinley #1 Mine)
Operator

McNally-Pittsburgh Mfg. Corp.
Box 36025
5340 Sombrero
Denver
CO
80236
(303) 798-4421
Glen T. Cahill, Business Development Mgr
(Mining Supply Co.)
Supply

Melroe Multi-Wheel
1301 Iowa
P.O. Box 1059
Longmont
CO
80501
(303) 776-0490
Supply

Merchants Petroleum Co.
Petroleum Club Bldg.
Denver
CO
80202
(303) 534-7151
J. R. Bozman, President
W. W. Morris, Vice President
Operator

Mesa Feed and Farm Supply
715 South 7th Street
Grand Junction
CO
81501
(303) 242-7762
(coal dealer)
Supply

Mid-Continent Coal & Coke Co.
P.O. Box 158
Carbondale
CO
81623
(303) 3213/2581
Edward Selan, mine supt.
John Reeves, V.P., Mine Mgr. (Coal Basin
Operator

Miller-Willis Assoc., Corp.
4965 Jackson St.
Denver
CO
80216
(303) 333-4231
Willis J. Ward
Consult

Milner Coal Corp.
Kelaidis Associates
Brooks Towers
1020 15th St., Suite 4-H
Denver
CO
80202
(303) 573-6427
George Kelaidis, Vice President
E. J. Kalaidis
Operator

Mobil Oil Corporation
Exploration and Producing
P.O. Box 5444, T.A.
Denver
CO
80202
(303) 572-2000
John Blumer, Coal Geological Supervisor
Operator

Moon Lake Electric Co.
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Roosevelt
UT
84066
(801) 722-2448
Merrill Millett, General Manager
(Gordon Mine)
Operator

Morgan Coal Company
Highway 2874 Laurel St.
Broomfield
CO
80020
Leland D. Wheeler
Operator

Morrison-Knudsen Co., Inc.
400 Broadway
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Boise
ID
83729
(208) 345-5000
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(Hayden Gulch Mine)
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80206
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Kathy Carlton, Associate Editor
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1790 Logan Street
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Denver
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80201
(303) 839-5177
Karen Giannascoli
(Coal Mine Employment)
Service

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CO
80201
(303) 355-1995
Connie Mull
(Mining & oil lease service)
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Murray, Robert K., Attorney
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Golden
CO
80401
(303) 279-2200
Consult

National King Coal Inc.
4424 County Road 120
Hesperus
CO
81326
(303) 385-4528
J. W. Smith, Supt. (King Coal Mine)
Russell Lester, Office Mgr.
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200 16th St., Suite 200
Denver
CO
80202
(303) 892-6724
(King Coal Mine)
Operator

Natural Resources Laboratory
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CO
80401
(303) 233-8155
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Service

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80202
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(Geologist)
Consult

Newlin Creek Coal Corp.
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Canon City
CO
81212
(303) 784-4227
(Newlin Creek Mine)
Operator

Nielsen, Merrill L.
13800 West 26th Avenue
Golden
CO
80401
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Merrill L. Nielsen
(Consulting Geologist)
Consult

North American Mining Consultants, Inc.
7501 E. Marin
Englewood
CO
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Hans Weise, V.P.
Consult

North Monson Co.
601 Broadway, Suite 108
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CO
80203
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Supply

Northern Coal Company
Box 957
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81641
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Chuck Richardson, Supt.
Operator

Northern Natural Gas Co.
222 N. 32nd St.
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MT
59101
(406) 245-5175
James E. Holdeman
Operator

NUS Corp.
720 S. Colorado Blvd. Suite 900
Denver
CO
80222
(303) 758-3438
Landy Stennett
(Mining, geology and ecology)
Service

O. C. Mine Co.
P.O. Box 772
Gunnison
CO
81230
(303) 641-1560
(O. C. Mine)
Operator

Office of Rural Development
Colorado Department of Local Affairs
1313 Sherman Street, Room 518
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CO
80203
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Glenn Kissinger
Agency

Olson (A. Peter) & Associates
2480 S. Quebec, D
Denver
CO
80231
(303) 755-5361
A. Peter Olson, President
Consult

Ortloff Minerals Services Corporation
4630 Indiana Street
Golden
CO
80401
(303) 279-7933
Service

Panhandle Eastern Pipeline Co.
3000 Biffonnet Avenue
Houston
TX
77005
John Best, Colorado Coal Activities
Operator

Pavlakas & Co.
115 N. 3rd St.
Grand Junction
CO
81501
Mr. Pavlakas, Sr.
(McGinley #1 Mine)
Operator

Peabody Coal Co.
P.O. Box 638
Nucla
CO
81424
(303) 864-7364
(Nucla Strip Mine)
Operator

Peabody Coal Co.
12075 E. 45th Ave.
Denver
CO
80239
(303) 371-7990
Diane Delaney, Western Div., Pub. Rela.
(Seneca #2, Seneca 2W, Yoast Mines)
Operator

Peacock Coal Co.
Rt. 1, Box 201
Hesperus
CO
81326
(303) 385-4377
(Peacock Mine)
Operator

Phoenix Resources, Inc.
777 S. Washington
Denver
CO
80209
(303) 377-3791
Donald G. Malotte
Doyle Scroggs
Consult

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Gulf Bldg., 1720 So. Bellaire St.
Denver
CO
80222
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(Farmers Mine)
Operator

Pittsburgh & Midway Coal Mining Company
P.O. Box 176
Oak Creek
CO
80467
(303) 736-8111
mine phone, 736-2526
(Edna Strip)
Operator

Polaris Crane & Equipment Co.
P.O. Box 328
Commerce City
CO
80037
(303) 571-0321
Dale L. Pinkerton, President
Supply

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7536 West 17th Ave.
Lakewood
CO
80215
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R. A. Hildebrand, President
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Power Equipment Co.
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CO
80201
(303) 288-6801
J. P. Burneson, V. P. - Sales
Supply

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CO
80215
(303) 233-9696
(Writer on Natural Resources)
Service

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Lakewood
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80215
(303) 234-0160
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CO
80290
(303) 861-9428
Wyatt M. Rogers, Jr.
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Consult

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CO
81648
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CO
80231
(303) 750-2653
Robert T. Reeder, President
Consult

Resource Exploration & Mining, Inc.
40 Inverness Dr. East
Englewood
CO
80203
(303) 773-3322
G. H. Bryant, President
Operator

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CO
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Consult

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80209
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Richard F. Hagemann, Sr. Geophysicist
James E. Barkdull, Sr. Geologist
Consult

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CO
80212
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Consult

Rikenbach, Sheble
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CO
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CO
(303) 825-2211
Supply

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Palisade
CO
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(303)464-7679
Wallace Brown (303)464-7233, 464-7677
(Roadside Mine)
Operator

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Lakewood
CO
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(Geologist)
Consult

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777 South Yarrow
Denver
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80226
(303) 988-2600
David Wilson
(Mining Engineer)
Consult

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Edgemont
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80401
(303) 238-3435
G. J. Jansen
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4704 Harlan St.
Denver
CO
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(303) 433-6841
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Roger Squire, Marketing
Operator

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Maynard Chapman, Editor
(Publication)
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Denver
CO
80202
(303) 573-9655
Gerald Armstrong, President
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Ruby Construction Co., Inc.
12025 E. 45th Ave.
Denver
CO
80239
(303) 371-4290
Charles F. Brannen
(Sun Potential Mine)
Operator

Sanchez, Willie
West of Cortez, Rt. 1, Box 22C
Cortez
CO
81321
(303) 565-3562
Supply

Schroeder Brothers Co.
484 So. Moore St.
Denver
CO
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Doug Hammer, District Manager
Service

Schwendinger Associates, Inc.
3314 So. Oneida Way
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CO
80224
(303) 758-6871
Richard B. Schwendinger, President
(Envir., Chemical, Agronomic)
Consult

Seneca Coal, Ltd.
Drawer D
Hayden
CO
81639
(303) 276-3559
J. F. Lake, Pres., Rocky Mtn. Division
F. W. Gilbert, Mine Supt. (Seneca #2, 2W
Operator

Sewanee Mining Company
P.O. Box 130
Meeker
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81641
(303) 878-5338
James Devereaux, Foreman
(Rienau #2 mine)
Operator

Shell Oil Company Mining Ventures
1700 Broadway
Denver
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Stuart R. Felde, Mine Eng.
K. W. Lagrone, Rocky Mt. Div. Ops. Mgr.
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80220
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E. H. Sibert
(Consulting Sociologist)
Consult

Sigma Mining Co.
P.O. Box 782
Walden
CO
80480
(303) 723-8321
David Sigismund
(Canadian Strip Mine)
Operator

Sjaastad, Gerald D.
Attorney at Law
Mining Exchange Building
Colorado Springs
CO
80202
(303) 473-5858
Consult

Skelly & Loy
720 Kipling St.
Denver
CO
80215
(303) 233-2445
Benjamin Costello, Mgr. Western Ops.
Consult

Smith, Fred L.
10305 West 34th Avenue
Wheat Ridge
CO
80033
(303) 238-0918
(Mining Engineer)
Consult

Solid Fuel Systems, Inc.
1865 West Dartmouth Avenue
Englewood
CO
80110
(303) 761-4075
John L. O°Brien, President
(Distributes coal heating systems)
Supply

SRI Community Response of Colorado, Inc.
790 W. Tennessee
Denver
CO
80223
(303) 778-0711
Edith M. Hughes, V.P.
(Sociological Assessments)
Consult

Standard Coal Co.
5660 So. Syracuse Circle
Denver
CO
(303) 773-2841
Supply

Stansbury Coal Company
P.O. Box 8789
950 17th St.
Denver
CO
80201
(303) 623-5661
(ext. 259)
Norman Keeler, General Sales Manager
Operator

Stearns-Roger, Inc.
Box 5888
Denver
CO
80217
(303) 770-6400
Robert M. Gillis, Project Manager
Don Provost, President
Consult

Stephens-Adamson
70 W. 6th Ave.
Denver
CO
80204
(303) 571-1063
Ronald Goddard, District Manager
(Manufactures conveyors)
Supply

Stevenson, Raymond H.
4783 South Willow
Denver
CO
80237
(303) 773-1983
(Austin Powder Company)
Supply

Stratford, Richard R.
3264 Austin Drive
Colorado Springs
CO
80909
(303) 473-3976
Richard R. Stratford
(Industrial Heating Consultant)
Consult

Stuart (G. H.) Co.
1051 Ford
Golden
CO
80401
(303) 279-2442
Supply

Sun Coal Co., Inc.
P.O. Box 26
Milner
CO
80477
(303) 824-5692
Gregory H. Hoyl, Pres.
(Meadows Strip #1)
Operator

Sunflower Energy Corp.
770 Grant St., Suite 100
Denver
CO
(303) 837-1242
Kenneth L. Schlagel, geologist
(Blue Ribbon Mine)
Operator

Sunland Mining Corporation
25990 Routt Co. Rd.
Box 55
Oak Creek
CO
80467
(303) 736-2376
Kenneth Henderson, Pres.
Shirley James,acct.; David Canning, eng.
Operator

Sunshine Coal Co.
P.O. Box 528
Trinidad
CO
81082
Sam Martin, Mine Supt.
Operator

Techna-Flo
Box 2203
Littleton
CO
80161
(303) 773-6528
J. William Haskins, President
Equipment Reps.
Supply

Teller Redi-Mix, Inc.
Woodland Park
CO
(303) 687-2310
(Coal and coke dealer)
Supply

Tepe Corporation
1600 W. Dartmouth Avenue
(303) 761-8550
(Coal Heating Specialists)
Supply

Terex Division - Gen. Motors Corp.
200 Fillmore St., Suite 102
Denver
CO
80206
(303) 399-2822
J. P. Neppel, Regional Manager
Equipment Reps.
Supply

Teton Exploration Drilling Co.
P.O. Box 26466
Denver
CO
80266
(303) 232-1304
John E. Brehm, Drilling Engineer
Service

Texaco Energy Resources Department
P.O. Box 2100
Denver
CO
80201
(303) 573-7571
Roy Whisenhunt
Operator

Texas Gulf Sulfur Co.
1612 Court Pl.
Denver
CO
80202
(303) 279-0900
James H. Ogg
Leo Miller, V.P. Minerals Exploration
Operator

Texas Instruments, Inc.
9725 East Hampden
Suite 301
Denver
CO
80231
(303) 751-1780
(Airborne Geophysical Services)
Service

Texas Oil & Gas Corp.
1660 Lincoln St., Suite 2030
Denver
CO
80264
(303) 623-1887
John K Beumee, Manager
Operator

Thorne Ecological Institute
2336 Pearl
Boulder
CO
80302
(303) 443-7325
Carl Norbeck, Asst. Director
(Applied Ecology)
Consult

Trans World Energy Ltd.
7100 Broadway
Denver
CO
(303) 429-6971
Supply

Twin Mountain Rock Co.
W. 48th Ave. & Huron
Denver
CO
(303) 573-1240
Supply

Twin Pines Coal Co.
1780 Brookside Ave.
Canon City
CO
81212
(303) 784-3361
Budgie Fazzino, Supt.
(Twin Pines Mine)
Operator

U.S. Army Corps of Engineers
Denver Resident Office
Lowry Air Force Base
Denver
CO
(303) 394-3183
Agency

U.S. Bureau of Land Management
Energy and Minerals Staff
Building 50, Denver Federal Center
Denver
CO
80225
(303) 234-5098
Earl Cox, Coal Specialist 234-2329
Edwin Montgomery, Leader, Energy & Min.
Agency

U.S. Bureau of Land Management
Colorado State Office
1600 Broadway, Room 700
Denver
CO
80203
(303) 837-4325
Roy McBroom, Minerals
Ed Parsons, Environmental
Agency

U.S. Bureau of Mines
Intermountain Field Operation Center
Denver Federal Center Building 20
Denver
CO
80225
(303) 234-3918
Raymond Lowrie, Director
Agency

U.S. Bureau of Mines
Liaison Office
Denver Federal Center
Denver
CO
80225
(303) 234-4205
Joseph Blake Smith
Agency

U.S. Department of Agriculture
Forest Service
Surface Environment and Mining
145 Grand Ave.
Billings
MT
59103
(406) 245-3143
Milo Jean Hassell
Agency

U.S. Department of Commerce
Economic Development Administration
Rocky Mountain Regional Office
909 17th Street
Denver
CO
(303) 837-3057
Agency

U.S. Department of Energy
Energy Information Administration
Office of Energy Data
12211 West Alameda, Room 109
Denver
CO
80228
(303) 234-5716
William Henkes
Agency

U.S. Department of Labor
Mine Safety and Health Administration
Coal Mine Safety and Health Dist. 9
P.O. Box 25367
Denver Federal Center
730 Simms Street
Lakewood
CO
80215
(303) 234-2293
John W. Barton, District Manager
Ed. & Train., Tech. Support, Safety & He
Agency

U.S. Department of Transportation
Federal Railroad Administration
Federal Building
Denver
CO
(303) 837-4136
Agency

U.S. Dept. of Health,Education,& Welfare
Occupational Safety and Health
Federal Building
Denver
CO
(303) 837-3979
Agency

U.S. Dept. of Interior
Office of Surface Mining Reclamation
& Enforcement (Region V)
1823 Stout Street
Denver
CO
80215
(303) 571-4301
Agency

U.S. Energy Corp., Crested Butte, CO.
625 E. Madison, Suite 1
Riverton
WY
82501
(307) 856-9271
(Peanut Mine)
Operator

U.S. Environmental Protection Agency
Office of Energy Activities
1860 Lincoln
Denver
CO
(303) 837-5914
Robert H. Hagen, Acting Director
Agency

U.S. Geological Survey
Conservation Division
Denver Federal Center
Box 25046
720 W. Alameda
Denver
CO
80225
(303) 234-2855
George Horn & Daniel Jobin
Paul Storrs, Mining Supervisor
Agency

U.S. Steel Corp.
P.O. Box 1
Somerset
CO
81434
(303) 929-5115
(Somerset Mine)
Operator

United Bank of Denver
Box 5247
Denver
CO
80217
(303) 861-8811
(ext. 2295)
George A. Brown, V.P. Petrol. & Mineral
Finance

United Computing Systems, Inc.
2460 West 26th Avenue
Suite 20C
Denver
CO
80211
(303) 458-8001
Ronald H. O°Kane, Sales Representative
Service

Uniweep C. C. H. Exploration Co.
P.O. Box 90
Whitewater
CO
(303) 723-4924
(Stripping equip. & labor contractor)
Service

Upland Industries Coporation
Subsidiary of Union Pacific Corp.
Suite 1200
One First National Center
Omaha
NE
68102
(402) 271-3189
Roger A. Zanarini, Director
(Real Estate Research & Planning)
Operator

URS Company
3955 E. Exposition Ave.
Denver
CO
80209
(303) 744-1861
Clair H. Iverson, Vice President
(Eng., Architect, Envir., Planning)
Consult

Utah International, Inc.
P.O. Box 187
Craig
CO
81625
(303) 824-4401
Mr. Diederich, mine mgr. (Trapper Mine,
Allen Rowley, surveyor
Operator

Van Poollen (H. K.) and Associates, Inc.
1100 W. Littleton Blvd.
Littleton
CO
80120
(303) 798-5412
Dr. Michael Holmes
Consult

VTN Colorado
2600 S. Parker Road #4
Denver
CO
80232
(303) 751-9151
Steve McCutcheon, Pres.
(Engrs., Architects, Planners)
Consult

Wagner Equipment Co.
6000 Dahlia St.
Denver
CO
80222
(303) 289-6111
Gary D. Kemp, Asst. Sales Manager
Supply

Wagnon & Associates, Inc.
9250 W. 5th Avenue
Lakewood
CO
80226
(303) 232-8585
Clyde Wagnon, president and owner
(Equipment manufacture reps.)
Supply

Weaver, Henry, Pres., O.C. Mine Co.
Gunnison
CO
81230
(303) 641-1044
(O. C. Mine)
Operator

WESCAR, Inc.
445 Union Blvd., Suite 202
Lakewood
CO
80228
(303) 988-2435
Roger Lee Bon, Manager, Western Ops.
(Subsidiary of Carbon Industries)
Operator

Western Fuel Corp.
12055 W. 2nd Place
Lakewood
CO
(Subsidiary Kansas-Nebraska Nat. Gas. Co
Operator

Western Fuels Assoc., Inc.
445 Union Blvd., Suite 203
Denver
CO
80228
(303) 988-9626
Don L. Deardorff, Mgr. of Development
Operator

Western Slope Carbon, Inc.
Somerset
CO
81434
(303) 929-5815
Dick Owens
(Hawks Nest Mines #1, #2)
Operator

Western Stoker & Mfgr.
Box 9 K
Arvada
CO
80001
Supply

Wheelabrator-Frye Inc.
600 Grant St.
Pittsburgh
PA
15219
W. Richard Hamilton, Mgr. Market Dept.
Supply

Wilde, Inc.
1660 So. Albion, Suite 414
Denver
CO
80222
(303) 756-9426
Donald E. Wilde, President
Dawson Unit proposal
Consult

Willdan Associates
P.O. Box 6379
Denver
CO
80206
(303) 377-8698
William G. McMullan
(Geologist/Environmental Planner)
Consult

Woodward-Clyde Consultants
2909 W. 7th Ave
Denver
CO
80204
(303) 573-7882
Ernest O. Pitschel, Vice Pres. - Mining
Consult

Wright Water Engineers, Inc.
2420 Alcott Street
Denver
CO
80211
(303) 458-6201
Kenneth Wright
Consult

Zapata Colorado Mining Corp.
7503 Marin Dr.
Englewood
CO
80110
(303) 773-2977
(Grizzly Crk. Mine)
Operator

PART VII. COAL MINE DATA SHEETS

INTRODUCTION

The following section consists of a detailed data sheet on every coal mine licensed or known to be proposed in Colorado as of December 31, 1977. We would greatly appreciate receiving any corrections or additions to these data sheets from the user of this book. Revised Coal Mine Data Sheets, as well as revisions of other sections of this publication, will be issued in the event that the Colorado Geological Survey is provided with the necessary funding to maintain the Coal Directory and Source Book as current as possible.

The heading "Licensed" or "Proposed" at the top of each mine data sheet signifies the mine status as of December 31, 1977. "Proposed" mines vary from those in the early stages of planning all the way to those essentially ready to apply to the Colorado Division of Mines for a license to mine. Some of the closed mines are listed as "Proposed" if we believe that they might be in the process of changing ownership, etc.

Most of the other numbered computer identifier categories should be self-explanatory. An asterisk (*) appearing after "17 HEAT VALUE (Btu/lb)", "18 SULFUR (%)", "19 MOISTURE (%)", and "20 ASH (%)" indicates that the analyses listed are on an as-received basis.

Whenever possible, information on the licensed mine data sheets has been verified by personal contact with or telephone call to the mine owner, operator, or other contact person. The reclamation permit information was obtained from the Colorado Mined Land Reclamation Division, Department of Natural Resources. Other pertinent data came from the files of the Colorado Division of Mines and the Colorado Geological Survey.

The computer/word processor program has been written so that each of the 40 categories listed on the Coal Mine Data Sheets can be searched and printouts made (e.g., a printout can be made listing all of the licensed mines in a certain county that produce steam coal).

LICENSED

1	COUNTY	ARCHULETA
2	COAL REGION	San Juan River
3	FIELD NAME	Pagosa Springs
4	MINE NAME	MARTINEZ STRIP
5	AREA	15 mi. SW of Pagosa Springs
6	LOCATION	Sec. 29, 30, T 34 N, R 4 W
7	MAP NAME (2-DEG.)	Cortez
8	TYPE OF MINE	Surface
9	MINING METHOD	Backhoe-strip
10	STARTUP DATE	1976
11	OVERBURDEN THICKNESS	Avg. 5'/1' coal
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	Fruitland Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	#1 is 5', #2 is 12', #3 is 7'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	12,200 - 13,000
18	SULFUR (%)*	0.4 - 0.5
19	MOISTURE (%)*	4 - 5
20	ASH (%)*	6 - 7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Chimney Rock Coal Co.
24	ADDRESS	Star Route 3, Box 52A
25	CITY, STATE, ZIP	Pagosa Springs, CO 81147
26	TELEPHONE	(303) 968-5903
27	COMPANY CONTACTS	John Miller, Pres.; Philip Welsh, Supt. (505) 988-2845
28	CORP. AFFILIATION	Chimney Rock Coal Co., 410 Old Taos Highway, Santa Fe, N.M. 87501; E & A Engineering, Inc., general partner; C & F Coal Co. (royalties only).
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, 80 acs. (expansion dependent upon further leasing)
31	PRODUCTION (S. TONS)	1977 - 4,070; cumulative to 6/1/78 - 31,804; 1978 (projected) - 25,000; 1979 (projected) - 100,000
32	EST. LIFE/RESERVES	5 years from present leases; estimated total remaining reserves, 650,000 tons in present leased area. Additional leases will add 15 years to life of mine.
33	SALES DATA	Local, in-state industries, out-of-state industries (confidential), power plant future possibility.
34	NUMBER OF EMPLOYEES	1977 - 3 to 5; 1978 (projected) 15 to 20; 1980 (projected) 6
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck
37	RECLAMATION PERMIT	11/23/76 - 9.8 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

LICENSED

1	COUNTY	DELTA
2	COAL REGION	Uinta
3	FIELD NAME	Somerset
4	MINE NAME	BLUE RIBBON
5	AREA	7 mi. NE of Paonia
6	LOCATION	Sec. 2, T 13 S, R 91 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional (cut-and-blast)
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	250' - 800'
12	NAME OF COAL BED	"E"
13	GEOLOGIC UNIT	Mesaverde
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6'
16	DIP (DEGREES)	6°
17	HEAT VALUE (BTU/lb)*	13,600
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	6.5
20	ASH (%)*	4.7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Sunflower Energy Corp. (general partner,owner,operator)
24	ADDRESS	770 Grant St., Suite 100
25	CITY, STATE, ZIP	Denver, CO
26	TELEPHONE	(303) 837-1242
27	COMPANY CONTACTS	Kenneth L. Schlagel, geologist
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private (80 acs.); Federal (80 acs.), will be mined first before royalty rate increases.
31	PRODUCTION (S. TONS)	1977 - 16,640; Cumulative to 1/1/78 - 52,445; 1978 (projected) 50,000; 1980 (projected) 50,000 to 70,000 capacity.
32	EST. LIFE/RESERVES	10 years at 70,000 tpy;750,000 tons recoverable.
33	SALES DATA	Local and in combination with another mine (confidential)
34	NUMBER OF EMPLOYEES	1977 - 40 (construction); 1978 (projected) 8 to 10;
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck to railhead or consumer.
37	RECLAMATION PERMIT	12/16/76 - 2.5 acs.
38	STATUS OF MINE	Reopening
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	DELTA
2	COAL REGION	Uinta
3	FIELD NAME	Somerset
4	MINE NAME	KING (Coors "Bowie Mine")
5	AREA	2 mi. NW of Bowie
6	LOCATION	Sec. 15, T 13 S, R 91 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	
11	OVERBURDEN THICKNESS	1,800' - 2,000' max.
12	NAME OF COAL BED	Uncorrelated
13	GEOLOGIC UNIT	Mesaverde
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	16'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	12,700 - 13,500
18	SULFUR (%)*	0.4 - 1.2
19	MOISTURE (%)*	2.9 - 6.1
20	ASH (%)*	4.3 - 8.1
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Adolph Coors Company
24	ADDRESS	Star Route 1, Box 24A
25	CITY, STATE, ZIP	Paonia, CO 81428
26	TELEPHONE	(303) 929-5401
27	COMPANY CONTACTS	Robert Kuretich, Adrian Delimont, at mine; Art Tschannen and Louis Gaspar in Golden.
28	CORP. AFFILIATION	Adolph Coors Co.
29	CORP. ADDRESS	Golden, CO 80401 (303) 279-6565 x 2074
30	LEASE INFORMATION	Private - 600 acs.
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 2,996,239
32	EST. LIFE/RESERVES	Unknown life. Produced up to 150 tpd 1903-1974.
33	SALES DATA	Adolph Coors Company plant boilers, which are being converted to burn coal.
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	DRGW railroad
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Closed
39	METHANE EMISSIONS	
40	DATE REVISED	1-12-78

LICENSED

1	COUNTY	DELTA
2	COAL REGION	Uinta
3	FIELD NAME	Grand Mesa
4	MINE NAME	ORCHARD VALLEY
5	AREA	3 mi. NW of Paonia
6	LOCATION	Sec. 24, T 13 S, R 92 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	Dec. 1976
11	OVERBURDEN THICKNESS	450' - 1,800'
12	NAME OF COAL BED	"B"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	appx. 11', "B"; 13', "C"; 26', "D"
16	DIP (DEGREES)	5°
17	HEAT VALUE (BTU/lb)*	12,000
18	SULFUR (%)*	0.4 - 0.44
19	MOISTURE (%)*	10 - 11
20	ASH (%)*	3 - 4
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Colorado Westmoreland, Inc.
24	ADDRESS	P.O. Box E
25	CITY, STATE, ZIP	Paonia, CO 81428
26	TELEPHONE	(303) 527-4135
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	Philadelphia, PA office
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private - 120 acs.; adjacent Federal - requested 2,240 acs. (320 acs. granted 12/77)
31	PRODUCTION (S. TONS)	1975-620; 1976-13,960; 1977-286,129; Cumulative to 1/1/78 - 320,025; 1978 (projected) 500,000 to 550,000; 1979 (projected) 600,000; 1980 (projected) 700,000.
32	EST. LIFE/RESERVES	Only 3 years without Federal lease; lease granted 2/2/78 (310.51 acs.)
33	SALES DATA	No local; Northern Indiana Public Service Co., 15-year contract (limited to 3 years at 700,000 tpy by Federal leasing policy)
34	NUMBER OF EMPLOYEES	1975 - 9; 1976 - 243; 1977 - 125; 1980 (projected) 240.
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck 4.5 miles to railhead.
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	DELTA
2	COAL REGION	Uinta
3	FIELD NAME	Grand Mesa
4	MINE NAME	RED CANYON #1 (Coalby 2)
5	AREA	2 mi. NW of Cedaredge
6	LOCATION	Sec. 12, 13, T 13 S, R 95 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	125' - 200'
12	NAME OF COAL BED	Unk. ("E" or Rollins)
13	GEOLOGIC UNIT	Mesaverde
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	4'
16	DIP (DEGREES)	6°
17	HEAT VALUE (BTU/lb)*	12,000
18	SULFUR (%)*	0.3 - 0.5
19	MOISTURE (%)*	3 - 4
20	ASH (%)*	4
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Coalby Mining Co.
24	ADDRESS	P.O. Box 167, Rt. 1
25	CITY, STATE, ZIP	Cedaredge, CO 81413
26	TELEPHONE	(303) 856-3821
27	COMPANY CONTACTS	Joe E. Belden, owner and operator
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private - 60 acs.
31	PRODUCTION (S. TONS)	1975 - 22; 1976 - 63; 1977 - 412 (closed); Cumulative to 1/1/78 - 233,426
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Local only
34	NUMBER OF EMPLOYEES	1977 - 1
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	11/29/77 - 3 acs.
38	STATUS OF MINE	Closed
39	METHANE EMISSIONS	
40	DATE REVISED	4-18-77

LICENSED

1	COUNTY	DELTA
2	COAL REGION	Uinta
3	FIELD NAME	Grand Mesa
4	MINE NAME	TOMAHAWK STRIP
5	AREA	4 mi. NW of Cedaredge
6	LOCATION	Sec. 9,15,16, T 13 S, R 95 W
7	MAP NAME (2-DEG.)	Moab
8	TYPE OF MINE	Surf/undergr later
9	MINING METHOD	Bulldozers, loaders, auger
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	outcrop 260'
12	NAME OF COAL BED	"A","B","C","D","E","F"
13	GEOLOGIC UNIT	Mesaverde
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	11.5'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	11,600 - 12,000
18	SULFUR (%)*	0.5 - 0.7
19	MOISTURE (%)*	8 - 14
20	ASH (%)*	6 - 8
21	RANK OF COAL	Bituminous, hvC
22	USE OF COAL	Steam
23	MINE OPERATOR	Lyle Kyllo (Colorado agent)
24	ADDRESS	P.O. Box 265
25	CITY, STATE, ZIP	Eckert, CO 81418
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	Quinn Development Co.
29	CORP. ADDRESS	P.O. Box 407, St. Clairesville, OH 43950
30	LEASE INFORMATION	Private - 195 acs.
31	PRODUCTION (S. TONS)	1977 - 24,171, Cumulative to 1/1/78, 142,328; 1978 (projected) 200,000 to 250,000
32	EST. LIFE/RESERVES	10 - 12 years (approx. 2 million tons to be surface-mined)
33	SALES DATA	Local
34	NUMBER OF EMPLOYEES	1977 - 14 to 18
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck 14 miles to proposed rail loading near Delta (D&RGW)
37	RECLAMATION PERMIT	12/16/76 - 195 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	4-18-77

LICENSED

1	COUNTY	FREMONT
2	COAL REGION	Canon City
3	FIELD NAME	Canon City
4	MINE NAME	BLACK DIAMOND (Corley,GEC)
5	AREA	6.5 mi. SW of Florence
6	LOCATION	Sec. 24, T 20 S, R 70 W
7	MAP NAME (2-DEG.)	Pueblo
8	TYPE OF MINE	Surface
9	MINING METHOD	Scrapers, loaders, bulldozers
10	STARTUP DATE	April 1976
11	OVERBURDEN THICKNESS	100' max.
12	NAME OF COAL BED	Brookside
13	GEOLOGIC UNIT	Vermejo
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6' - 7'
16	DIP (DEGREES)	7° W
17	HEAT VALUE (BTU/lb)*	10,000 - 11,290
18	SULFUR (%)*	0.3 - 0.6
19	MOISTURE (%)*	8.9 - 13.1
20	ASH (%)*	7.9 - 17.1
21	RANK OF COAL	Bituminous/Subbitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	GEC Minerals, Inc.
24	ADDRESS	P.O. Box 225
25	CITY, STATE, ZIP	Florence, CO 81226
26	TELEPHONE	(303) 784-6891
27	COMPANY CONTACTS	Dean McKinnon, Foreman
28	CORP. AFFILIATION	See GEC S & A Mine
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private - 1 section complete
31	PRODUCTION (S. TONS)	1976 - 44,851, 1977 - 30,079; Cumulative to 1/1/78; 1,267,487.
32	EST. LIFE/RESERVES	50,000 - 60,000. This mine is a depleted underground mine currently being stripped for better recovery under the name of GEC S & A Mine.
33	SALES DATA	
34	NUMBER OF EMPLOYEES	1976 - 8; 1977 - 18 to 22 local
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	25-ton trucks
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Now GEC strip mine.
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	FREMONT
2	COAL REGION	Canon City
3	FIELD NAME	Canon City
4	MINE NAME	CEDAR CANON STRIP
5	AREA	4 mi. SW of Rockvale
6	LOCATION	Sec. 35, T 19 S, R 70 W
7	MAP NAME (2-DEG.)	Pueblo
8	TYPE OF MINE	Surface
9	MINING METHOD	Bulldozer
10	STARTUP DATE	
11	OVERBURDEN THICKNESS	70' max.
12	NAME OF COAL BED	Brookside
13	GEOLOGIC UNIT	Vermejo
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	5.5' - 6.1'
16	DIP (DEGREES)	1°
17	HEAT VALUE (BTU/lb)*	9,800 - 10,500
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	9 - 10
20	ASH (%)*	18 - 20
21	RANK OF COAL	Bituminous/Subbitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	Cedar Canon Coal Co.
24	ADDRESS	Rt. 1, Box 113
25	CITY, STATE, ZIP	Florence, CO 81226
26	TELEPHONE	(303) 784-3511,4335
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private
31	PRODUCTION (S. TONS)	1975 - 1,715; 1976 - 2,152; 1977 - 2,328; Cumulative to 1/178: 1,007,641. 1978 (projected) 1,500 to 3,000
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	W.N. Clark Power Plant, Canon City
34	NUMBER OF EMPLOYEES	1975 - 2; 1976 - 2
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	25-ton trucks, 10 miles to power plant
37	RECLAMATION PERMIT	7/21/78 - 5 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-28-78

1	COUNTY	FREMONT
2	COAL REGION	Canon City
3	FIELD NAME	Canon City
4	MINE NAME	GEC S & A (Black Diamond)
5	AREA	7 mi. SW of Florence
6	LOCATION	Sec. (var.), T 19, 20 S, R 69, 70 W
7	MAP NAME (2-DEG.)	Pueblo
8	TYPE OF MINE	Surface
9	MINING METHOD	Bulldozers
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	100' max.
12	NAME OF COAL BED	Brookside
13	GEOLOGIC UNIT	Vermejo
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6' - 7'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	See Black Diamond
18	SULFUR (%)*	"
19	MOISTURE (%)*	"
20	ASH (%)*	"
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	GEC Minerals, Inc.
24	ADDRESS	P.O. Box 225
25	CITY, STATE, ZIP	Florence, CO 81226
26	TELEPHONE	(303) 784-6891
27	COMPANY CONTACTS	Dean McKinnon, Foreman
28	CORP. AFFILIATION	Sonny Swab (owner), General Energy Corp.
29	CORP. ADDRESS	2835 E. Skelly Dr., Suite 836, Tulsa, OK 74105
30	LEASE INFORMATION	
31	PRODUCTION (S. TONS)	1977 - 19,510; Cumulative to 1/1/78: 19,510
32	EST. LIFE/RESERVES	Unknown - stripping the old Black Diamond underground mine.
33	SALES DATA	CF & I in-plant heating use. Local sales approx. 5,000 tpy (stoker, lump)
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	6/23/77 - 1,258 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	FREMONT
2	COAL REGION	Canon City
3	FIELD NAME	Canon City
4	MINE NAME	GOLDEN QUALITY #5
5	AREA	3 mi. S of Canon City
6	LOCATION	Sec. 2, T 20 S, R 70 W
7	MAP NAME (2-DEG.)	Pueblo
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	
11	OVERBURDEN THICKNESS	2,000'
12	NAME OF COAL BED	Brookside
13	GEOLOGIC UNIT	Vermejo
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6'
16	DIP (DEGREES)	1.5 - 4.5°SE
17	HEAT VALUE (BTU/lb)*	10,920 - 11,400
18	SULFUR (%)*	0.4 - 0.5
19	MOISTURE (%)*	9.9 - 10.7
20	ASH (%)*	7.4 - 10.4
21	RANK OF COAL	Bitum., Subbitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	Golden Quality Coal Co. (sole owner, land and leases)
24	ADDRESS	1403 Birch
25	CITY, STATE, ZIP	Canon City, CO 81212
26	TELEPHONE	(303) 275-3700
27	COMPANY CONTACTS	Tony or Ralph Carestia
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private lease of 120 acs. from Juliano and 440 acs. returned from delinquent buyer.
31	PRODUCTION (S. TONS)	1975 - 3,075; 1976 - idle; 1977 - idle; Cumulative to 1/1/78: 300,190
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	
34	NUMBER OF EMPLOYEES	1975 - 3
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	1/31/75 - 1 ac.
38	STATUS OF MINE	Closed, reclaiming
39	METHANE EMISSIONS	
40	DATE REVISED	2-13-78

LICENSED

1	COUNTY	FREMONT
2	COAL REGION	Canon City
3	FIELD NAME	Canon City
4	MINE NAME	HASTINGS STRIP
5	AREA	6 mi. SW of Florence
6	LOCATION	Sec. 19, T 20 S, R 69 W
7	MAP NAME (2-DEG.)	Pueblo
8	TYPE OF MINE	Surface
9	MINING METHOD	Dozers, loaders, scrapers
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	2' - 20'
12	NAME OF COAL BED	Brookside
13	GEOLOGIC UNIT	Vermejo
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	5', 8', 5', (to 3.5', 4', 3.5', 3')
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Robert M. Hastings, owner and operator
24	ADDRESS	7010 Burnt Mill Road So.
25	CITY, STATE, ZIP	Beulah, CO 81023
26	TELEPHONE	(303) 564-6684
27	COMPANY CONTACTS	Robert M. and Imogene Hastings
28	CORP. AFFILIATION	Hastings Mine Office
29	CORP. ADDRESS	7 1/2 miles SW of Florence on County Rd. 92, Trailer #104
30	LEASE INFORMATION	Private - 80 acs.
31	PRODUCTION (S. TONS)	1977 - 32; Cumulative to 1/1/78: 2,000 (stockpiled); 1978 (projected) 7,000 tons/ month capacity
32	EST. LIFE/RESERVES	Recoverable reserves estimated to be 1.568 million tons
33	SALES DATA	Individual local consumers
34	NUMBER OF EMPLOYEES	1977 - 5; 1978 (projeted) - 8; 1979 (projected) - 10
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck to railhead to Canon City
37	RECLAMATION PERMIT	7/22/77 - 80 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

LICENSED

1	COUNTY	FREMONT
2	COAL REGION	Canon City
3	FIELD NAME	Canon City
4	MINE NAME	NEWLIN CREEK
5	AREA	
6	LOCATION	Sec. 30, 31, T 20 S, R 69 W
7	MAP NAME (2-DEG.)	Pueblo
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner, shuttle cars
10	STARTUP DATE	1978
11	OVERBURDEN THICKNESS	100'
12	NAME OF COAL BED	Shamrock vein
13	GEOLOGIC UNIT	Vermejo Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	11,049
18	SULFUR (%)*	0.4
19	MOISTURE (%)*	11.34
20	ASH (%)*	7.51
21	RANK OF COAL	
22	USE OF COAL	Steam
23	MINE OPERATOR	Newlin Creek Coal Corp.
24	ADDRESS	1780 Brookside Avenue
25	CITY, STATE, ZIP	Canon City, CO 81212
26	TELEPHONE	(303) 784-4227
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	Joseph Carpine
29	CORP. ADDRESS	1110 Myrtle Lane, Canon City, CO 81212 - Home phone (303) 275-5512
30	LEASE INFORMATION	Private - 205 acs.
31	PRODUCTION (S. TONS)	1977 - 1,607; Cumulative to 1/1/78: 1,607
32	EST. LIFE/RESERVES	
33	SALES DATA	Sales to GEC
34	NUMBER OF EMPLOYEES	1977 - 1
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	11/23/76 - 3 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

LICENSED

1	COUNTY	FREMONT
2	COAL REGION	Canon City
3	FIELD NAME	Canon City
4	MINE NAME	TWIN PINES
5	AREA	2 mi. S of Rockvale
6	LOCATION	Sec. 1, T 20 S, R 70 W
7	MAP NAME (2-DEG.)	Pueblo
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner and conventional mining
10	STARTUP DATE	1956
11	OVERBURDEN THICKNESS	75' - 200'
12	NAME OF COAL BED	Brookside
13	GEOLOGIC UNIT	Vermejo
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6' - 6.5'
16	DIP (DEGREES)	2 1/4° NW
17	HEAT VALUE (BTU/lb)*	10,560 - 11,310
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	10.6 - 11.7
20	ASH (%)*	7.3 - 12.8
21	RANK OF COAL	Bitum., Subbitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	Twin Pines Coal Co.
24	ADDRESS	1780 Brookside Avenue
25	CITY, STATE, ZIP	Canon City, CO 81212
26	TELEPHONE	(303) 784-3361, home
27	COMPANY CONTACTS	Budgie Fazzino, Supt.
28	CORP. AFFILIATION	Joseph Carpine
29	CORP. ADDRESS	1110 Myrtle Lane, Canon City, CO 81212 - home phone (303) 275-3676
30	LEASE INFORMATION	Private - 300 acs. - leased from Juliano Co.
31	PRODUCTION (S. TONS)	1975 - 31,764; 1976 - 40,700; 1977 - 37,114; Cumulative to 1/1/78: 445,240; 1980 (projected) 45,000
32	EST. LIFE/RESERVES	Unknown life; 1 million tons reserve
33	SALES DATA	Local - 10,000 tpy stoker, nut, lump; W. N. Clark Power Plant in Canon City - 30,000 tpy
34	NUMBER OF EMPLOYEES	1975 - 8; 1976 - 9; 1977 - 9; 1980 (projected) - 9
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Five 25-ton trucks/day to power plant in Canon City
37	RECLAMATION PERMIT	1/25/78 - 4 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

LICENSED

1	COUNTY	GARFIELD
2	COAL REGION	Uinta
3	FIELD NAME	Grand Hogback
4	MINE NAME	EASTSIDE
5	AREA	4 mi. N of Silt
6	LOCATION	Sec. 24, T 5 S, R 92 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Handwork/diesel loader
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	60' to unknown max.
12	NAME OF COAL BED	"E"
13	GEOLOGIC UNIT	Mesaverde Group/Williams Fork Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	12.5' - 16'
16	DIP (DEGREES)	58°
17	HEAT VALUE (BTU/lb)*	12,700 - 13,200
18	SULFUR (%)*	0.6 - 0.8
19	MOISTURE (%)*	3 - 4
20	ASH (%)*	6 - 7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Louis Bendetti Coal Co. (owner)
24	ADDRESS	P.O. Box 156
25	CITY, STATE, ZIP	Silt, CO 81652
26	TELEPHONE	(303) 876-2816
27	COMPANY CONTACTS	Louis Bendetti
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private - 500 acs.
31	PRODUCTION (S. TONS)	1977 - 257; Cumulative to 1/1/78: 257; 1978 (projected) 2,000 to 3,000; 1979 (projected) 5,000 to 8,000
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Local, 70% stoker, 30% lump
34	NUMBER OF EMPLOYEES	1977 - 2 to 3
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Preparation
39	METHANE EMISSIONS	
40	DATE REVISED	1/78

LICENSED (TEST SITE ONLY)

1	COUNTY	GARFIELD
2	COAL REGION	Uinta
3	FIELD NAME	Book Cliffs
4	MINE NAME	E. SALT CREEK TEST SITE 1
5	AREA	
6	LOCATION	Sec. 9, T 7 S, R 102 W
7	MAP NAME (2-DEG.)	Grand Junction
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	200' - 1200'
12	NAME OF COAL BED	Cameo & Palisade zones
13	GEOLOGIC UNIT	Mt. Garfield
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	Varies
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bitum., subbitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	Sheridan Enterprises
29	CORP. ADDRESS	8301 E. Prentice Ave., Englewood, CO 80110 (303-770-6021) Bill Anderson
30	LEASE INFORMATION	Federal, 14,928 acres
31	PRODUCTION (S. TONS)	1977 - 0; Cumulative to 1/1/78: 0
32	EST. LIFE/RESERVES	
33	SALES DATA	
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Closed, burned out
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	GARFIELD
2	COAL REGION	Uinta
3	FIELD NAME	Book Cliffs
4	MINE NAME	MCCLANE CANYON
5	AREA	
6	LOCATION	Sec. 21, T 7 S, R 102 W
7	MAP NAME (2-DEG.)	Grand Junction
8	TYPE OF MINE	
9	MINING METHOD	Auger holes
10	STARTUP DATE	Mined 8 mos. in 1977
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	
22	USE OF COAL	
23	MINE OPERATOR	
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	Sheridan Enterprises, Inc.
29	CORP. ADDRESS	8301 E. Prentice Avenue., Englewood, CO 80110 - (303) 770-6021, Bill Anderson
30	LEASE INFORMATION	Federal private
31	PRODUCTION (S. TONS)	1977- 47,816; Cumulative to 1/1/78: 47,816
32	EST. LIFE/RESERVES	
33	SALES DATA	
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Temporary closure
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	GARFIELD
2	COAL REGION	Uinta
3	FIELD NAME	Book Cliffs
4	MINE NAME	MUNGER CANYON
5	AREA	
6	LOCATION	Sec. 27, T 7 S, R 102 W
7	MAP NAME (2-DEG.)	Grand Junction
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous, diesel/haulage
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	
22	USE OF COAL	Steam
23	MINE OPERATOR	Black Hawk Coal Co.
24	ADDRESS	P.O. Box 1555
25	CITY, STATE, ZIP	Grand Junction, CO 81501
26	TELEPHONE	(303) 243-8473
27	COMPANY CONTACTS	Mike Cantrell
28	CORP. AFFILIATION	Sheridan Enterprises, Inc. (owner) - (303) 770-6021, Bill Anderson
29	CORP. ADDRESS	8301 E. Prentice Avenue, Englewood, CO 80110
30	LEASE INFORMATION	Federal
31	PRODUCTION (S. TONS)	1977 - 20,531; Cumulative to 1/1/78: 20,531; 1978 (projected) tentative 4-year planned capacity is 1,000 tons/day at each of two mines by June 1978
32	EST. LIFE/RESERVES	Exploration underway
33	SALES DATA	Spot sales to utilities for test burns
34	NUMBER OF EMPLOYEES	1977 - 30; 1978 (projected) 60 by June
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck 20 miles to Loma
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	GARFIELD
2	COAL REGION	Uinta
3	FIELD NAME	Grand Hogback
4	MINE NAME	NU-GAP #3
5	AREA	3.5 mi. N of Silt
6	LOCATION	Sec. 24, T 5 S, R 92 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional - P&S
10	STARTUP DATE	1971
11	OVERBURDEN THICKNESS	400' - 800'
12	NAME OF COAL BED	Sunnyridge (?Allen)
13	GEOLOGIC UNIT	Mesaverde Group/Williams Fork Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6.5' average
16	DIP (DEGREES)	56° SW
17	HEAT VALUE (BTU/lb)*	13,000
18	SULFUR (%)*	0.4 - 0.5
19	MOISTURE (%)*	3 - 4
20	ASH (%)*	6
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Henry Bendetti (owner)
24	ADDRESS	1117 Grand Avenue
25	CITY, STATE, ZIP	Glenwood Springs, CO 81601
26	TELEPHONE	(303) 945-5797
27	COMPANY CONTACTS	Henry Bendetti
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, 700 - 800 acs.
31	PRODUCTION (S. TONS)	1975 - 539; 1976 - 441; 1977 - 397; Cumulative to 1/1/78: 6,210; 1978 (projected) 500 to 1,000
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Local only, stoker and lump
34	NUMBER OF EMPLOYEES	1975 - 3; 1976 - 1 to 2; 1977 - 1 to 3; 1978 (projected) 1 to 3
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED (TEST SITE ONLY)

1	COUNTY	GARFIELD
2	COAL REGION	Uinta
3	FIELD NAME	
4	MINE NAME	SPINK CANYON TEST SITE 1
5	AREA	
6	LOCATION	Sec. 8, T 7 S, R 102 W
7	MAP NAME (2-DEG.)	Grand Junction
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	200' - 1,200'
12	NAME OF COAL BED	Cameo and Palisade Zone
13	GEOLOGIC UNIT	Mt. Garfield Formation, Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	Varies
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bitum., Subbitum.
22	USE OF COAL	
23	MINE OPERATOR	Sheridan Enterprises
24	ADDRESS	8301 E. Prentice Avenue
25	CITY, STATE, ZIP	Englewood, CO 80110
26	TELEPHONE	
27	COMPANY CONTACTS	Bill Anderson (303) 770-6021
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Federal, 14,928 acs.
31	PRODUCTION (S. TONS)	1977-0
32	EST. LIFE/RESERVES	
33	SALES DATA	
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	
39	METHANE EMISSIONS	
40	DATE REVISED	2-28-78

1	COUNTY	GARFIELD
2	COAL REGION	Uinta
3	FIELD NAME	Carbondale
4	MINE NAME	SUNLIGHT (old Four Mile)
5	AREA	5.5. mi. W of Carbondale
6	LOCATION	Sec. 34, T 7 S, R 89 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	370' - 1,500' max.
12	NAME OF COAL BED	"D", "A", "C"
13	GEOLOGIC UNIT	Lower Mesaverde
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	D,A - 9'; C - 7.5'
16	DIP (DEGREES)	40° - 42°
17	HEAT VALUE (BTU/lb)*	13,500
18	SULFUR (%)*	0.5 - 0.7
19	MOISTURE (%)*	4
20	ASH (%)*	4
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Carbon King, Ltd.
24	ADDRESS	2nd and Union
25	CITY, STATE, ZIP	Lakewood, CO
26	TELEPHONE	(303) 989-1740
27	COMPANY CONTACTS	T. R. Young, attorney
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, 840 acs.
31	PRODUCTION (S. TONS)	1975 - 1,295; 1976 - 984; 1977 - 1,792; Cumulative to 1/1/78: 175,566; 1978 (projected) 7,500 to 12,500
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Local
34	NUMBER OF EMPLOYEES	1975 - 1; 1976 - 1 to 2
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-22-78

LICENSED

1	COUNTY	GUNNISON
2	COAL REGION	Uinta
3	FIELD NAME	Somerset
4	MINE NAME	BEAR
5	AREA	1.5 mi. E of Somerset
6	LOCATION	Sec. 9,16, T 13 S, R 90 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1945
11	OVERBURDEN THICKNESS	1,200'
12	NAME OF COAL BED	"Juanita C" (above Rollins Ss.)
13	GEOLOGIC UNIT	Lower Mesaverde, lower Bowie Member
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7' - 12' (see below)
16	DIP (DEGREES)	(?)° SE
17	HEAT VALUE (BTU/lb)*	12,170 - 13,430
18	SULFUR (%)*	0.4 - 1.0
19	MOISTURE (%)*	4.5 - 7.0
20	ASH (%)*	2.8 - 8.9
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	Bear Coal Co., Inc.
24	ADDRESS	
25	CITY, STATE, ZIP	Somerset, CO 81434
26	TELEPHONE	(303) 929-5775
27	COMPANY CONTACTS	William A. Bear, President; David Hoer; Lawrence Hinkle
28	CORP. AFFILIATION	ARCO (lessor)
29	CORP. ADDRESS	1500 Security Life Bldg., Denver, CO 80202 - (303) 573-3518, Mr. Trepp, mine engineer
30	LEASE INFORMATION	Private, 1,382 acs.
31	PRODUCTION (S. TONS)	1975 - 132,135; 1976 - 109,226; 1977 - 226,220; Cumulative to 1/1/78: 3,100,164
32	EST. LIFE/RESERVES	"Juanita F" 12' thick to be mined after "C". Seam "B" is 25' thick and it will be mined last for best coking coal. Seam "E" reserves unknown. Total reserves confidential; present agreement terminates in 3 years.
33	SALES DATA	Local; American Smelting & Refining Co. negotiating 1978 renewal, Kennecott Copper (McGill, Nevada) negotiating contract renewal; 100,000 tpy Cameo power plant (Mesa County, Colorado) 1977 - 1979
34	NUMBER OF EMPLOYEES	1975 - 51; 1976 - 39 to 42; 1977 - 54
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Unit trains 77-ton cars; 28-51/week
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	259 Mcf/day; 431.6 cf/ton of coal mined (MESA, 1977)
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	GUNNISON
2	COAL REGION	Uinta
3	FIELD NAME	Somerset
4	MINE NAME	HAWKS NEST EAST (#2)
5	AREA	2 mi. E of Somerset
6	LOCATION	Sec. 11, T 13 S, R 90 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1976
11	OVERBURDEN THICKNESS	1,600' max.
12	NAME OF COAL BED	"E"
13	GEOLOGIC UNIT	Mesaverde - Bowie member
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	9.0'
16	DIP (DEGREES)	(?)° NW
17	HEAT VALUE (BTU/lb)*	12,500
18	SULFUR (%)*	0.2 - 0.5
19	MOISTURE (%)*	Unknown
20	ASH (%)*	5 - 7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	Western Slope Carbon, Inc.
24	ADDRESS	
25	CITY, STATE, ZIP	Somerset, CO 81434
26	TELEPHONE	(303) 929-5815
27	COMPANY CONTACTS	Dick Owens
28	CORP. AFFILIATION	Salt Lake City, Utah Office, Al Perry - sales manager
29	CORP. ADDRESS	315 E. 200 South, Salt Lake City, UT 84111 - (801) 534-3687
30	LEASE INFORMATION	Federal; adjacent Federal lands limit development
31	PRODUCTION (S. TONS)	1975 - 0; 1976 - 26,787; 1977 - 190,349 (stockpiling); Cumulative to 1/1/78: 1,163,675; 1978 (projected) 400,000
32	EST. LIFE/RESERVES	4 - 5 years. Mine plan could allow 1 million tpy extractions if it were not surrounded by unleased Federal land.
33	SALES DATA	CF & I contract ended 12/1/77. No new contracts for 1978.
34	NUMBER OF EMPLOYEES	1976 - 41 to 44 (including development workers); 1977 - 100+ (including development workers); 1978 (projected) 150 to 175
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Truck, unit trains
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	GUNNISON
2	COAL REGION	Uinta
3	FIELD NAME	Somerset
4	MINE NAME	HAWKS NEST WEST (#3)
5	AREA	2 mi. E of Somerset
6	LOCATION	Sec. 12, T 13 S, R 90 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1970
11	OVERBURDEN THICKNESS	1,600' - 2,000'
12	NAME OF COAL BED	"E"
13	GEOLOGIC UNIT	Lower Mesaverde - Bowie
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	9.0'
16	DIP (DEGREES)	21/4-31/2°NW
17	HEAT VALUE (BTU/lb)*	12,400 - 13,400
18	SULFUR (%)*	0.3 - 0.5
19	MOISTURE (%)*	4.4 - 7.1
20	ASH (%)*	3.2 - 9.1
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	Western Slope Carbon, Inc. (See Hawks Nest East (#2)
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Federal
31	PRODUCTION (S. TONS)	1976 - 155,732; 1977 - 12,362; cum. to 1/1/78: 1,092,071
32	EST. LIFE/RESERVES	See Hawks Nest East mine plan
33	SALES DATA	See Hawks Nest East contracts
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Truck, unit trains
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Closed for devel.
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	GUNNISON
2	COAL REGION	Uinta
3	FIELD NAME	Crested Butte
4	MINE NAME	O. C. MINE #2
5	AREA	2 mi. SE of Baldwin
6	LOCATION	Sec. 16, T 15 S, R 86 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	1941
11	OVERBURDEN THICKNESS	1,800' - 2,000' max.
12	NAME OF COAL BED	"C" Kubler
13	GEOLOGIC UNIT	Mesaverde
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	5.5' - 6.0'
16	DIP (DEGREES)	3 - 3 1/2°NW
17	HEAT VALUE (BTU/lb)*	11,840
18	SULFUR (%)*	0.3 - 0.6
19	MOISTURE (%)*	9.5 - 10.1
20	ASH (%)*	4.3 - 6.0
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	O. C. Mine Co.
24	ADDRESS	P.O. Box 772
25	CITY, STATE, ZIP	Gunnison, CO 81230
26	TELEPHONE	(303) 641-1560
27	COMPANY CONTACTS	Henry L. Weaver, Pres.
28	CORP. AFFILIATION	O. C. Mine Co.
29	CORP. ADDRESS	Gunnison, CO 81230 - (303) 641-1044
30	LEASE INFORMATION	Federal, 80 acs.
31	PRODUCTION (S. TONS)	1975 - 2,851; 1976 - 3,322; 1977 - 3,696; Cumulative to 1/1/78: 64,301
32	EST. LIFE/RESERVES	100,000 tons
33	SALES DATA	Local only - dealers, school districts
34	NUMBER OF EMPLOYEES	1975 - 5; 1976 - 9; 1977 - 8 to 10
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-28-78

LICENSED

1	COUNTY	GUNNISON
2	COAL REGION	Uinta
3	FIELD NAME	Crested Butte
4	MINE NAME	PEANUT
5	AREA	2 mi. NW of Crested Butte
6	LOCATION	Sec. 28, T 13 S, R 86 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	Unknown
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	"Thin"
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Anthracite
22	USE OF COAL	
23	MINE OPERATOR	U.S. Energy Corp., Crested Butte, CO
24	ADDRESS	
25	CITY, STATE, ZIP	Crested Butte, CO
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	U.S. Energy Corp.
29	CORP. ADDRESS	625 E. Madison, Suite 1, Riverton, WY 82501 - (307) 856-9271
30	LEASE INFORMATION	Federal, private
31	PRODUCTION (S. TONS)	1977 - 0; Cumulative to 1/1/78: 0
32	EST. LIFE/RESERVES	Approx. 1 million tons
33	SALES DATA	No plans
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	No prod., no devel.
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	GUNNISON
2	COAL REGION	Uinta
3	FIELD NAME	Somerset
4	MINE NAME	SOMERSET
5	AREA	In town of Somerset
6	LOCATION	Sec. 8, T 13 S, R 90,91 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1902
11	OVERBURDEN THICKNESS	200' - 2,000'
12	NAME OF COAL BED	"B" Bear Seam
13	GEOLOGIC UNIT	Lower Mesaverde
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	12' mined
16	DIP (DEGREES)	3 - 6° NE
17	HEAT VALUE (BTU/lb)*	12,070 - 12,970
18	SULFUR (%)*	0.4 - 0.6
19	MOISTURE (%)*	3.8 - 8.2
20	ASH (%)*	7.9 - 12.0
21	RANK OF COAL	Bituminous, hv-C
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	U.S. Steel Corp.
24	ADDRESS	P.O. Box 1
25	CITY, STATE, ZIP	Somerset, CO 81434
26	TELEPHONE	(303) 929-5115
27	COMPANY CONTACTS	"Big Miller", mine mgr.; Paul Watson, gen. supt. - (801) 888-4431
28	CORP. AFFILIATION	U.S. Steel Corp., Western District - Coal
29	CORP. ADDRESS	P.O. Box 807, East Carbon UT 84520
30	LEASE INFORMATION	Federal, private
31	PRODUCTION (S. TONS)	1975 - 955,000; 1976 - 950,156; 1977 - 914,552; Cumulative to 1/1/78: 18,812,392; 1980 (projected) 950,000
32	EST. LIFE/RESERVES	20+ years; 20 million tons reserve
33	SALES DATA	No local. All shipped to U.S. Steel Geneva plant in Orem, UT.
34	NUMBER OF EMPLOYEES	1975 - 254; 1976 - 285; 1980 (projected) 283
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	DRGW unit train, 32 to 38 100-ton cars, 5 - 6 days/week
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	1,692 Mcf/day; 376 cf/ton of coal mined (MESA, 1977)
40	DATE REVISED	2-26-78

1	COUNTY	JACKSON
2	COAL REGION	North Park
3	FIELD NAME	North Park
4	MINE NAME	CANADIAN STRIP
5	AREA	9.5 mi. SE of Walden
6	LOCATION	Sec. 2, T 8 N, R 78 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Bulldozers and scrapers
10	STARTUP DATE	Sept. 1975
11	OVERBURDEN THICKNESS	20' - 25'
12	NAME OF COAL BED	Sudduth
13	GEOLOGIC UNIT	Coalmont Formation
14	GEOLOGIC AGE	Paloecene - Eocene
15	COAL BED THICKNESS	34' - 40'
16	DIP (DEGREES)	45°
17	HEAT VALUE (BTU/lb)*	10,500
18	SULFUR (%)*	0.3
19	MOISTURE (%)*	13
20	ASH (%)*	7
21	RANK OF COAL	Subbituminous A
22	USE OF COAL	Steam
23	MINE OPERATOR	Sigma Mining Co.
24	ADDRESS	P.O. Box 782
25	CITY, STATE, ZIP	Walden, CO 80480
26	TELEPHONE	(303) 723-8321
27	COMPANY CONTACTS	David Sigismund
28	CORP. AFFILIATION	Ralph Flesch & Son, Inc.
29	CORP. ADDRESS	313 Main, Box 517, Walden, CO - (303) 723-4737
30	LEASE INFORMATION	Private, 160 acs. - only 70.43 acs. are surface mineable and permitted.
31	PRODUCTION (S. TONS)	1975 - 18,201; 1976 - 20,301; 1977 - 148,560; Cumulative to 1/1/78: 187,062; planned capacity is 30,000 tons/ month.
32	EST. LIFE/RESERVES	1 - 2 years. If sales reach 30,000 tons/month quota, mine will be depleted by late 1978.
33	SALES DATA	Consolidation Coal Co. handles all sales; no local spot sales. Adolph Coor Company (Golden, CO); Celetex (Peoria, IL); Central Ill. Public Service Co. (Liss, IL); Central Ill. Light Co. (Dunfermline, IL); Catepillar Co. (Mossville, IL).
34	NUMBER OF EMPLOYEES	1975 - 6; 1976 - 12; 1977 - 22 to 24
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Rail (UP, BN, ICG, RI)
37	RECLAMATION PERMIT	5/27/75 - 58 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	JACKSON
2	COAL REGION	North Park Basin
3	FIELD NAME	North Park
4	MINE NAME	MARR STRIP #1 (old Kerr)
5	AREA	9 mi. SE of Walden
6	LOCATION	Sec. 36, T 8, 9 N, R 78 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Bulldozers and scrapers
10	STARTUP DATE	12/74
11	OVERBURDEN THICKNESS	230'
12	NAME OF COAL BED	Sudduth
13	GEOLOGIC UNIT	Coalmont Formation
14	GEOLOGIC AGE	Paleocene - Eocene
15	COAL BED THICKNESS	60'
16	DIP (DEGREES)	60°
17	HEAT VALUE (BTU/lb)*	10,040-11,280
18	SULFUR (%)*	0.2 - 0.7
19	MOISTURE (%)*	11.0 - 14.4
20	ASH (%)*	2.1 - 10.8
21	RANK OF COAL	Subbituminous A
22	USE OF COAL	Steam
23	MINE OPERATOR	Kerr Coal Co.
24	ADDRESS	P.O. Box 6
25	CITY, STATE, ZIP	Walden, CO 80480
26	TELEPHONE	(303) 723-8287
27	COMPANY CONTACTS	William Kerr, Pres.
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, 720 acs.; State, 920 acs.
31	PRODUCTION (S. TONS)	1975 - 237,476; 1976 - 249,784; 1977 - 347,396; Cumulative to 1/1/78: 944,848; 1980 (projected) 300,000
32	EST. LIFE/RESERVES	4 years/1 million tons
33	SALES DATA	Local; no other up-to-date information
34	NUMBER OF EMPLOYEES	1975 - 36; 1976 - 38; 1977-1978 - 38 to 40
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck
37	RECLAMATION PERMIT	12/15/77 - 150 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	4-18-77

LICENSED

1	COUNTY	LA PLATA
2	COAL REGION	San Juan River
3	FIELD NAME	Durango
4	MINE NAME	BLUE FLAME
5	AREA	4 mi. SW of Hesperus
6	LOCATION	Sec. 31, T 35 N, R 11 W
7	MAP NAME (2-DEG.)	Cortez
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	150' - 1,300'
12	NAME OF COAL BED	Pueblo
13	GEOLOGIC UNIT	Upper Menefee Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6'
16	DIP (DEGREES)	1° SW
17	HEAT VALUE (BTU/lb)*	13,000 - 14,000
18	SULFUR (%)*	0.6 - 0.8
19	MOISTURE (%)*	
20	ASH (%)*	3
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Fidel Lobato
24	ADDRESS	1,400 miles (73 100-ton cars on car unit trains every 2 - 3 days)
25	CITY, STATE, ZIP	Durango, CO 81301
26	TELEPHONE	(303) 247-0058
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	(Denver) Bob Lobato
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private - 40 acs.
31	PRODUCTION (S. TONS)	1976 - 0; 1977 - 0; Cumulative to 1/1/78: 72,590
32	EST. LIFE/RESERVES	Unknown; has capacity for producing 6 tons/day
33	SALES DATA	Local
34	NUMBER OF EMPLOYEES	1977 - 1 to 2
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Preparation
39	METHANE EMISSIONS	
40	DATE REVISED	4-18-77

LICENSED

1	COUNTY	LA PLATA
2	COAL REGION	San Juan River
3	FIELD NAME	
4	MINE NAME	COAL GULCH (old Victory)
5	AREA	
6	LOCATION	Sec. 15,16,20,22, T 35 N, R 10 W
7	MAP NAME (2-DEG.)	Cortez
8	TYPE OF MINE	Underground
9	MINING METHOD	Room-and-pillar, using old portal
10	STARTUP DATE	1978 (seam A-1)
11	OVERBURDEN THICKNESS	200' - 500'
12	NAME OF COAL BED	A-1 Basal Zone, A-2 seam, B-4 seam
13	GEOLOGIC UNIT	Menefee Formation
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	A-1 and B-4 are 10', A-2 is 3'
16	DIP (DEGREES)	4 - 5°
17	HEAT VALUE (BTU/lb)*	13,500 - 14,000
18	SULFUR (%)*	0.4 - 0.8
19	MOISTURE (%)*	3 - 8
20	ASH (%)*	4 - 9
21	RANK OF COAL	Bitum., hv-A or B
22	USE OF COAL	metallurgical
23	MINE OPERATOR	Arness-McGriffen Coal Co.
24	ADDRESS	Private, 199 acs. leased from Grassy Creek Coal Co. and Eilts. Small part of Sec. 14 has Federal coal which Sun Coal Co. proposes to mine as "nuisance coal" if land is leased for short term.
25	CITY, STATE, ZIP	Durango, CO 81301
26	TELEPHONE	(303) 259-1501
27	COMPANY CONTACTS	Ken McGriffen, Pres.
28	CORP. AFFILIATION	Energy Capitol, Ltd. (Subsid. of Calder & Co.) subleased coal to operator for life of mine.
29	CORP. ADDRESS	
30	LEASE INFORMATION	State - 600 acs.; private - 900 acs.
31	PRODUCTION (S. TONS)	1977 - 1,250; Cumulative to 1/1/78: 358,296; 19?? (projected) up to 100,000 depending on market
32	EST. LIFE/RESERVES	88% of total 1,500 acs. is coal-bearing; over 80 million tons reserve in beds 3' thick or more; estimated recoverability is 50%. Mining permit is for 30 years.
33	SALES DATA	Local demand is small (5,000 tpy); no firm contracts; transportation problems increase cost approx. $7/ton above average market price.
34	NUMBER OF EMPLOYEES	1978 (projected) - 12 to 15 startup
35	UNION AFFILIATION	
36	TRANSPORTATION	Truck 110 miles to Del Norte railhead. May develop company-owned trucking operation. Transportation adds $7/ton to cost of coal.
37	RECLAMATION PERMIT	10/77 - 40 acs.
38	STATUS OF MINE	Preparation
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

1	COUNTY	LA PLATA
2	COAL REGION	San Juan River
3	FIELD NAME	Durango
4	MINE NAME	HAY GULCH STRIP
5	AREA	4 mi. SW of Hesperus
6	LOCATION	Sec. 36, T 35 N, R 12 W
7	MAP NAME (2-DEG.)	Cortez
8	TYPE OF MINE	Surface/underground
9	MINING METHOD	Bulldozers and scrapers
10	STARTUP DATE	1978
11	OVERBURDEN THICKNESS	Outcrop - 70'
12	NAME OF COAL BED	Pueblo - Menefee (?)
13	GEOLOGIC UNIT	
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	7'
16	DIP (DEGREES)	SW
17	HEAT VALUE (BTU/lb)*	11,800 - 14,000
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	5 - 6
20	ASH (%)*	7 - 10
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	C & F Coal Co., Inc.
24	ADDRESS	3,155 acs. private and State only; all Federal coal is depleted. Adjacent preference rights leases needed.
25	CITY, STATE, ZIP	Durango, CO 81301
26	TELEPHONE	(303) 259-1290
27	COMPANY CONTACTS	Milton Fuller, Pres.
28	CORP. AFFILIATION	Calder & Co.
29	CORP. ADDRESS	
30	LEASE INFORMATION	State - 80 acs. C & F Coal Co. sold most of rights to Calder & Co., retaining a small portion to mine. Neither C & F nor Calder are developing the coal at present.
31	PRODUCTION (S. TONS)	1976 - 0; 1977 - 0; Cumulative to 1/1/78: 59,503; 1978 (projected) 10,000 to 25,000; 1979 (projected) 25,000 to 50,000; 1980 (projected) 25,000 to 50,000
32	EST. LIFE/RESERVES	Surface mining limited to approx. 100,000 tons; remainder to be mined underground.
33	SALES DATA	No plans beyond local market until railroad is built into SW Colo.
34	NUMBER OF EMPLOYEES	1976 - 0; 1977 - 0
35	UNION AFFILIATION	
36	TRANSPORTATION	Truck 150 miles to rail. Transportation adds approx. $7/ton coal.
37	RECLAMATION PERMIT	
38	STATUS OF MINE	No production
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

1	COUNTY	LA PLATA
2	COAL REGION	San Juan River
3	FIELD NAME	Durango
4	MINE NAME	KING COAL
5	AREA	7 mi. SW of Hesperus
6	LOCATION	Sec. 32, T 35 N, R 11 W
7	MAP NAME (2-DEG.)	Cortez
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1936
11	OVERBURDEN THICKNESS	284' max.
12	NAME OF COAL BED	Pueblo
13	GEOLOGIC UNIT	Menefee (uncorrelated)
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6'
16	DIP (DEGREES)	3°
17	HEAT VALUE (BTU/lb)*	12,700 - 14,000
18	SULFUR (%)*	0.15 - 0.3
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	National King Coal, Inc. (of King Coal Mine)
24	ADDRESS	dependent upon preference rights lease approval under Jay Thompson property.
25	CITY, STATE, ZIP	Hesperus, CO 81326
26	TELEPHONE	(303) 385-4528
27	COMPANY CONTACTS	J. W. Smith, supt.; Russell Lester, office mgr.; Ray Joeckel (Denver official)
28	CORP. AFFILIATION	Denver office
29	CORP. ADDRESS	200 16th St., Suite 200, Denver CO (303) 892-6724
30	LEASE INFORMATION	Federal, 160 acs.
31	PRODUCTION (S. TONS)	1975 - 15,790; 1976 - 16,770; 1977 - 22,570; Cumulative to 1/1/78: 252,341; 1978 (projected) dependent on pending contracts.
32	EST. LIFE/RESERVES	Presently expanding/reserves unknown.
33	SALES DATA	12,000 tons local sales; approx. 250 tons to Cumbres-Toltec RR and 1,000 tons to Durango-Silverton RR; spot 10,000-ton sale to CF & I; 500 - 600 tons/month to Rio Algon Corp. uranium processing plant in Moab, Utah; other contracts under negotiation.
34	NUMBER OF EMPLOYEES	1975 - 11; 1976 - 11; 1977 - 20
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Company-owned trucking (includes three 25-ton semi-trucks; railhead in South Fork near Del Norte is 140 miles away; transport situation adds $7/ton to cost of coal.
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

1	COUNTY	LA PLATA
2	COAL REGION	San Juan River
3	FIELD NAME	Durango
4	MINE NAME	PEACOCK
5	AREA	3 mi. SW of Hesperus
6	LOCATION	Sec. 29, T 35 N, R 11 W
7	MAP NAME (2-DEG.)	Cortez
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	Jan. 1977
11	OVERBURDEN THICKNESS	Unknown
12	NAME OF COAL BED	Unknown (Mueller?)
13	GEOLOGIC UNIT	Menefee Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	5' - 11'
16	DIP (DEGREES)	3° SW
17	HEAT VALUE (BTU/lb)*	11,400 - 14,000
18	SULFUR (%)*	0.6 - 4.0
19	MOISTURE (%)*	3.5 - 10.7
20	ASH (%)*	3.4 - 11.3
21	RANK OF COAL	Bituminous
22	USE OF COAL	Semi-coking
23	MINE OPERATOR	Peacock Coal Co.
24	ADDRESS	Rt. 1, Box 201
25	CITY, STATE, ZIP	Hesperus, CO 81326
26	TELEPHONE	(303) 385-4377
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private
31	PRODUCTION (S. TONS)	1976 - 100 (Prep.); 1977 - 1,828; Cumulative to 1/1/78: 75,091; 1978 (projected) 50,000 to 60,000; Projected capacity - 100,000 max.
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Local 20,000 tpy
34	NUMBER OF EMPLOYEES	1976 - 2; 1977 - 2 to 4
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck 50 miles to Creede or Ridgeway at railhead
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	4-18-77

LICENSED

1	COUNTY	LAS ANIMAS
2	COAL REGION	Raton Mesa
3	FIELD NAME	Trinidad
4	MINE NAME	ALLEN
5	AREA	1 mi. W of Vigil
6	LOCATION	Sec. 27, T 33 S, R 68 W
7	MAP NAME (2-DEG.)	Trinidad
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1951
11	OVERBURDEN THICKNESS	400' - 1,000'
12	NAME OF COAL BED	Allen (Ciruelo)
13	GEOLOGIC UNIT	Raton Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	5'
16	DIP (DEGREES)	1° - 16°
17	HEAT VALUE (BTU/lb)*	11,260 - 13,330
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	4 - 5
20	ASH (%)*	8 - 12
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	CF & I Steel Corp.
24	ADDRESS	
25	CITY, STATE, ZIP	Weston, CO 81091
26	TELEPHONE	(303) 868-2261
27	COMPANY CONTACTS	Mr. Matheson, mgr. mines - (303) 561-6622 (Pueblo)
28	CORP. AFFILIATION	CF & I Steel Corp.
29	CORP. ADDRESS	P.O. Box 316, Pueblo, CO 81002
30	LEASE INFORMATION	Private - 250,000 acs.; 3 State - 1,400 acs.
31	PRODUCTION (S. TONS)	1975 - 632,047; 1976 - 618,867; 1977 - 582,257; Cumulative to 1/1/78: 15,776,846; 1980 (projected) 630,000
32	EST. LIFE/RESERVES	40 years (not verified by CF & I)
33	SALES DATA	CF & I steel plant in Puelbo
34	NUMBER OF EMPLOYEES	1975 - 440; 19786 - 374; 1977 - 400+; 1980 (projected) 400+
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Forty-one 100-ton unit train cars, 3/week via CW, CS, DRGW, ATSF; trucks also.
37	RECLAMATION PERMIT	1/28/78 - 180 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	428 Mcf/day; 164.8 cf/tons of coal mined (MESA, 1977)
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	LAS ANIMAS
2	COAL REGION	Raton Mesa
3	FIELD NAME	
4	MINE NAME	DELAGUA STRIP(old Berwind)
5	AREA	1 mi. NW of Delagua
6	LOCATION	Sec. 15, T 31 S, R 65 W
7	MAP NAME (2-DEG.)	Trinidad
8	TYPE OF MINE	Surface
9	MINING METHOD	
10	STARTUP DATE	
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	Delagua
13	GEOLOGIC UNIT	Raton Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	4' - 5.5'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	12,550
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	2.9
20	ASH (%)*	11.8
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam/Semi-coking
23	MINE OPERATOR	Delagua Coal Co.
24	ADDRESS	Charles Margolf (303) 399-0779 (Dir. W. R. Grace Western Coal Operations); Ira McKeever, president and general mgr. (Craig); John Kuhlen, marketing; Burl Jensen, eng.
25	CITY, STATE, ZIP	Trinidad, CO 81082
26	TELEPHONE	(303) 399-7083
27	COMPANY CONTACTS	Charles Wilkins, CPA
28	CORP. AFFILIATION	Victor American Fuels Co., N.Y. City
29	CORP. ADDRESS	c/o Claude Maer, Holland & Hart Lawyers, Equitable Bldg., Denver, CO - (303) 292-9200
30	LEASE INFORMATION	Private coal lease owned by Victor American Fuel Co., leased to Alvin E. Wiggins, Delagua Coal Co.
31	PRODUCTION (S. TONS)	1977 - 6,700; Cumulative to 1/1/78: 24,942,887
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Local
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck
37	RECLAMATION PERMIT	6/23/77 - 9.9 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	LAS ANIMAS
2	COAL REGION	Raton Mesa
3	FIELD NAME	Trinidad
4	MINE NAME	HEALEY STRIP
5	AREA	1.5 mi. NW OF Aguilar
6	LOCATION	Sec. 21, T 30 S, R 65 W
7	MAP NAME (2-DEG.)	Trinidad
8	TYPE OF MINE	Surface
9	MINING METHOD	Front-end loaders and bulldozers
10	STARTUP DATE	1976
11	OVERBURDEN THICKNESS	50' max.
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	Raton Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	3' - 6'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	12,256
18	SULFUR (%)*	0.6 - 0.7
19	MOISTURE (%)*	2 - 3
20	ASH (%)*	8 - 9
21	RANK OF COAL	Bituminous
22	USE OF COAL	Semi-metallurgical
23	MINE OPERATOR	Horner Coal Co.
24	ADDRESS	P.O. Box 20218, Montclair Station
25	CITY, STATE, ZIP	Denver, CO 80220
26	TELEPHONE	(303) 322-1265
27	COMPANY CONTACTS	Morris Replin
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, lease from Sunshine Coal Co. and one other separate private lease.
31	PRODUCTION (S. TONS)	1976- 12,832; 1977 - 95,952; Cumulative to 1/1/78: 108,784; 1978 (projected) 100,00 to 150,000
32	EST. LIFE/RESERVES	30 acs. total with unknown reserves
33	SALES DATA	Local. W. N. Clark Power Plant (Canon City, CO) less than 5,000 tons/month, combined with Jewell Strip 1977 - 1978; other contracts under negotiation.
34	NUMBER OF EMPLOYEES	1976 - 5; 1977 - 9; 1978 (projected) 9
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	Date? - 74 acs.; 12/31/76 - 15 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	12-31-77

LICENSED

1	COUNTY	LAS ANIMAS
2	COAL REGION	Raton Mesa
3	FIELD NAME	Trinidad
4	MINE NAME	JEWELL STRIP
5	AREA	2 mi. NW of Aguilar
6	LOCATION	Sec. 21, T 30 S, R 65 W
7	MAP NAME (2-DEG.)	Trinidad
8	TYPE OF MINE	Surface
9	MINING METHOD	Front-end loaders and bulldozers
10	STARTUP DATE	1975
11	OVERBURDEN THICKNESS	60' max.
12	NAME OF COAL BED	Rapson
13	GEOLOGIC UNIT	Vermejo Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	3.6' - 5.'
16	DIP (DEGREES)	12°
17	HEAT VALUE (BTU/lb)*	9,207 (?)
18	SULFUR (%)*	0.44
19	MOISTURE (%)*	13.85
20	ASH (%)*	8.94
21	RANK OF COAL	Bitum./Subbitum.(?)
22	USE OF COAL	Steam & semi-coking
23	MINE OPERATOR	Horner Coal Co. (see Healey Strip)
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, 120 acs. leased to Horner Coal Co.
31	PRODUCTION (S. TONS)	1975 - 160; 1976 - 17,769; 1977 - 25,591; Cumulative to 1/1/78: 461,298
32	EST. LIFE/RESERVES	10 acs. total, with unknown reserves.
33	SALES DATA	Combined with Healey Strip Mine
34	NUMBER OF EMPLOYEES	1975 - 3; 1976 - 5; 1977 - see Healey Strip
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	Date? - 10 acs. 12/31/76 - 15 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-14-78

LICENSED

1	COUNTY	LAS ANIMAS
2	COAL REGION	Raton Mesa
3	FIELD NAME	Trinidad
4	MINE NAME	MAXWELL
5	AREA	3 mi. SE of Allen Mine
6	LOCATION	Sec. 29, T 33 S, R 67 W
7	MAP NAME (2-DEG.)	Trinidad
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	410' - 1,400'
12	NAME OF COAL BED	Apache
13	GEOLOGIC UNIT	Vermejo Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	5'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	See Allen Mine
18	SULFUR (%)*	See Allen Mine
19	MOISTURE (%)*	See Allen Mine
20	ASH (%)*	See Allen Mine
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	CF & I Steel Corp.
24	ADDRESS	
25	CITY, STATE, ZIP	Weston, CO 81091
26	TELEPHONE	(303) 868-3372
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	CF & I Steel Corp.
29	CORP. ADDRESS	P.O. Box 316, Pueblo, CO 81002 - (303) 561-662, Matheson
30	LEASE INFORMATION	See Allen Mine
31	PRODUCTION (S. TONS)	1977 - 31,815; Cumulative to 1/1/78: 31,815; 1978 (projected) 100,00; 1979 (projected) 250,000
32	EST. LIFE/RESERVES	Unknown reserves. Planned production of 2,000 tons/day initially; 5,000 ton/day at capacity; for 250 work days production could reach 1.25 million tpy.
33	SALES DATA	CF & I Pueblo steel plant
34	NUMBER OF EMPLOYEES	1977 - 0 to 40; 1978 (projected) 100; 1980 (projected) 400
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Forty-one 100-ton unit train cars, 1/week to 3/week by 1980; CW, CS, DRGW, ATSF.
37	RECLAMATION PERMIT	1/28/78 - 156 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	MESA
2	COAL REGION	Uinta
3	FIELD NAME	Book Cliffs
4	MINE NAME	CAMEO
5	AREA	1 mi. NE of Cameo
6	LOCATION	Sec. 27?,34, T 10 S, R 98 W
7	MAP NAME (2-DEG.)	Grand Junction
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	early 1978
11	OVERBURDEN THICKNESS	Under 1,800'
12	NAME OF COAL BED	Cameo "B"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6 - 9.5'
16	DIP (DEGREES)	3° NE
17	HEAT VALUE (BTU/lb)*	12,500
18	SULFUR (%)*	0.4 - 0.6
19	MOISTURE (%)*	6 - 8
20	ASH (%)*	7 - 11
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Cameo Coal Co. (owned by GEX Colo. Co.)
24	ADDRESS	P.O. Box W
25	CITY, STATE, ZIP	Palisade, CO 81526
26	TELEPHONE	(303) 464-7679
27	COMPANY CONTACTS	Wallace Brown
28	CORP. AFFILIATION	General Exploration Colorado Co. (Subsid. of GEX Co. in Dallas)
29	CORP. ADDRESS	P.O. Box W, Palisade, CO 81526
30	LEASE INFORMATION	Private, 2,300 acs.; Federal, 2,560 acs.
31	PRODUCTION (S. TONS)	1976 - 28; 1977 - 0; Cumulative to 1/1/78: 4,216,274; 1978 (projected) 100,000 to 250,000; 1979 (projected) 200,000 to 500,000
32	EST. LIFE/RESERVES	Planned capacity - 900,000 tpy, approx. 15-year life. Reserves estimated at 50,000,000 tons
33	SALES DATA	Mississippi Power Plant, Jackson, MS; 13 million tons over 16-year contract (see CMC Mine)
34	NUMBER OF EMPLOYEES	1976 - 3; at projected capacity - 250 to 300
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Unit train
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Preparation
39	METHANE EMISSIONS	
40	DATE REVISED	2-28-78

LICENSED

1	COUNTY	MESA
2	COAL REGION	Uinta
3	FIELD NAME	Book Cliffs
4	MINE NAME	ROADSIDE (old CMC mine)
5	AREA	1 mi. S of Cameo
6	LOCATION	Sec. 34, T 10 S, R 98 w
7	MAP NAME (2-DEG.)	Grand Junction
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	1961
11	OVERBURDEN THICKNESS	Less than 1,800'
12	NAME OF COAL BED	Cameo "B"
13	GEOLOGIC UNIT	Lower Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6.7' - 7.0'
16	DIP (DEGREES)	3°
17	HEAT VALUE (BTU/lb)*	11,990 - 13,010
18	SULFUR (%)*	0.4 - 0.6
19	MOISTURE (%)*	5 - 6
20	ASH (%)*	7 - 11
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Roadside Mining Corp. (owned by GEX Colo. Co.
24	ADDRESS	P.O. Box W
25	CITY, STATE, ZIP	Palisade, CO 81526
26	TELEPHONE	(303) 464-7679
27	COMPANY CONTACTS	Wallace Brown (303) 464-7233, 464-7677
28	CORP. AFFILIATION	GEX Colorado Co. (subsidiary of GEX Co. in Dallas
29	CORP. ADDRESS	P.O. Box W, Palisade, CO 81526
30	LEASE INFORMATION	Private, 560 acs. leased from Cambridge Mining Corp. (CMC); Federal, 80 acs.
31	PRODUCTION (S. TONS)	1975 - 75,738; 1976 - 57,106; 1977 - 300,199; Cumulative to 1/1/78: 748,486; 1978 (projected) 300,000 to 400,000; 1981 (projected) 800,000 peak production
32	EST. LIFE/RESERVES	1,200,000 tons, deplete by 1985. If Federal coal leases are obtained, 800,000 tpy will be maintained more than one year.
33	SALES DATA	Stoker sales to dealers; Arizona Electric Power Co., Denson, AZ, approx. 500,000 tpy.
34	NUMBER OF EMPLOYEES	1975 - 38; 1976 - 61; 1981 (projected) 200 to 250 capacity
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck south across Colorado River to unit train
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	MOFFAT
2	COAL REGION	Uinta
3	FIELD NAME	Danforth Hills
4	MINE NAME	COLOWYO(old Red Wing mine)
5	AREA	28 mi. SW of Craig
6	LOCATION	Sec. 2,3,4,9, T 3 N, R 93 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline,shovels,trucks(stripping old underground mine)
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	300' max.
12	NAME OF COAL BED	"X","Y","A-F" (8 beds)
13	GEOLOGIC UNIT	Williams Fork, Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	10-bed cumulative 59.4' (2.7' - 12.3')
16	DIP (DEGREES)	9° N
17	HEAT VALUE (BTU/lb)*	10,300
18	SULFUR (%)*	0.29
19	MOISTURE (%)*	15 - 17
20	ASH (%)*	4.5 - 5
21	RANK OF COAL	Bitum.,Subbitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	Colowyo Coal Co.
24	ADDRESS	Axial Star Route, Box 9B
25	CITY, STATE, ZIP	Meeker, CO 81641
26	TELEPHONE	(303) 824-4456
27	COMPANY CONTACTS	Charles Margolf (303) 399-0779 (Dir. W. R. Grace Western Coal Operations); Ira McKeever, president and general mgr. (Craig); John Kuhlen, marketing; Burl Jensen, eng.
28	CORP. AFFILIATION	W. R. Grace Co. and Hanna Mining Co. (joint venture, partnership)
29	CORP. ADDRESS	3333 Quebec St., Suite 8800, Denver, CO 80207
30	LEASE INFORMATION	Private, 181 acs.; Federal, 2,560 acs.
31	PRODUCTION (S. TONS)	1976 - 0; 1977 - 290,531; Cumulative to 1/1/78: 4,274,592; 1978 (projected) 1,500,000; 1980 (projected) 3,000,000.
32	EST. LIFE/RESERVES	Strippable reserves in the "X" and "Y" seams of the 4-section area is 165 million tons (90 million tons in present pit); deep reserves in the "A-F" seams is 7200 million tons.
33	SALES DATA	Central Power and Light, Corpus Christi, Texas, is the main out-of-state consumer. 20-30 years permit up to 3MM ton production approved. 1977: 300,000 tons (220,000 to Colo. Spgs. and PSC of Colo. utilities; 40,000 out-of-state industry; 39,000 to Colo. industry). 1978: 100,000 tons industrial (40,000 in-state and 60,000 out-of-state); 600,000 tons utilities (300,000 tons in-state, 300,000 tons out-of-state). 1979: Negotiating contracts, spot and long term. 1980: 1.5 million tpy to PSC of Colo. and Colo. Spgs. utilities.
34	NUMBER OF EMPLOYEES	1977 - 40 to 50; 1978 (projected) 115; 1980 (projected) 244
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck; DRGW unit train with three hundred 100-ton cars, 1 - 2/week; 1979 RR spur completion.
37	RECLAMATION PERMIT	8/25/77 - 475 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	3-1-78

1	COUNTY	MOFFAT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	EAGLE #5 (Wise Hill #5)
5	AREA	8 mi. SW of Craig
6	LOCATION	Sec. 31, T 6 N, R 91 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner, shuttle cars, continuous haulage
10	STARTUP DATE	1971
11	OVERBURDEN THICKNESS	300' - 600'
12	NAME OF COAL BED	"F"
13	GEOLOGIC UNIT	Upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	12' - 14'
16	DIP (DEGREES)	12° - 15°
17	HEAT VALUE (BTU/lb)*	10,600
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	16
20	ASH (%)*	5.8
21	RANK OF COAL	Bitum., Subbitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	Empire Energy Corp.
24	ADDRESS	P.O. Box 68
25	CITY, STATE, ZIP	Craig, CO 81625
26	TELEPHONE	(303) 824-9467
27	COMPANY CONTACTS	Peter Epp, operating; Steven Self, Div. Chief Eng.; Steven Cherry, marketing (388-4401)
28	CORP. AFFILIATION	Denver office
29	CORP. ADDRESS	3333 Quebec St., Suite 3000, Denver, CO 80207 (303) 388-4401
30	LEASE INFORMATION	Private; Federal, 80 acs., 529.9 acs.
31	PRODUCTION (S. TONS)	1975 - 314,768; 1976 - 382,289; 1977 - 447,510; cumulative to 1/1/78: 1,674,586; 1980 (projected) - 600,000
32	EST. LIFE/RESERVES	30 years; expansion will be south and west.
33	SALES DATA	No local; Martin Drake Power Plant (Colorado Springs, CO), 312,000 tpy; open-end contract to Iowa Power & Light, 150,000 - 180,000 tpy (7,500 tons/week)
34	NUMBER OF EMPLOYEES	1975 - 63; 1976 - 80
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Rail (DRGW, UP, or BN) to Nebraska
37	RECLAMATION PERMIT	11/16/74 - 8 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	MOFFAT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	EAGLE #9 (Wise Hill #9)
5	AREA	8 mi. SW of Craig
6	LOCATION	Sec. 32, T 6 N, R 91 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	
9	MINING METHOD	
10	STARTUP DATE	1978
11	OVERBURDEN THICKNESS	100' - 1,000'
12	NAME OF COAL BED	"P" seam
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	
16	DIP (DEGREES)	N 30° E
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	
22	USE OF COAL	
23	MINE OPERATOR	Empire Energy Corp. (same as Eagle #5)
24	ADDRESS	P.O. Box 68
25	CITY, STATE, ZIP	Craig, CO 81625
26	TELEPHONE	(303) 824-9467
27	COMPANY CONTACTS	Peter Epp, operations; Steven Self, Div. Chief Eng.; Steven Cherry, marketing (388-4401)
28	CORP. AFFILIATION	Denver office
29	CORP. ADDRESS	3333 Quebec St., Suite 3000, Denver, CO 80207 (303) 388-4401
30	LEASE INFORMATION	State
31	PRODUCTION (S. TONS)	1977 - 23,495; cumulative to 1/1/78: 23,495; 1980 (projected) 2.2 million tpy combined with Eagle #5
32	EST. LIFE/RESERVES	Expansion will be south, east, west.
33	SALES DATA	Combine with Eagle #5.
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Rail (DRGS, UP, BN) to eastern Nebraska, then Iowa destination.
37	RECLAMATION PERMIT	3/24/77 - 35 acs.
38	STATUS OF MINE	Preparation
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	MOFFAT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	TRAPPER STRIP (old Craig)
5	AREA	6 mi. S/SW of Craig
6	LOCATION	Sec. 33, T 6 N, R 91 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline - Dipline
10	STARTUP DATE	May 1977
11	OVERBURDEN THICKNESS	40' - 120'
12	NAME OF COAL BED	"H", "I", "K-M", "Q", "R"
13	GEOLOGIC UNIT	Williams Fork Formation, Upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	Avg. 11'
16	DIP (DEGREES)	9° N
17	HEAT VALUE (BTU/lb)*	9,500 - 11,500
18	SULFUR (%)*	0.3 - 0.5
19	MOISTURE (%)*	16
20	ASH (%)*	5.7
21	RANK OF COAL	Subbitum./bitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	Utah International, Inc.
24	ADDRESS	P.O. Box 187
25	CITY, STATE, ZIP	Craig, CO 81625
26	TELEPHONE	(303) 824-4401
27	COMPANY CONTACTS	Mr. Diederich, mine mgr.; Allen Rowley, surveyor
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	3 private leases and county leases, 520 acs.; 4 state leases, 10,324 acs. (current operators - 1st dragline); 4 Federal leases, 5,450 acs. (last to be mined). Additional mine location data: Sec. 5, 6, T 5 N, R 90 W; Sec. 31,32, T 6 N, R 90 W; Sec. 32-36, T 6 N, R 91 W; Sec. 1-15, T 5 N, R 91 W; Williams Fork #3 Mine for expansion.
31	PRODUCTION (S. TONS)	1976 - 0; 1977 - 345,948; Cumulative to 1/1/78: 345,948; 1978 (projected) 1,770,000; 1979 (projected) 2,333,000; 1980 - 1989 (avg. prod.) 2,375,000 tpy
32	EST. LIFE/RESERVES	35 years at 2.2 million tpy
33	SALES DATA	No local; all coal used at Craig power plant at 2.3 million tpy. Miscellaneous 0.4 million tpy under various negotiations.
34	NUMBER OF EMPLOYEES	1976 - 80; 1977 - 198; 1978 (projected) 235
35	UNION AFFILIATION	Operating Engineers
36	TRANSPORTATION	Truck from mine to crusher owned by Colorado-Ute Electric Assoc.
37	RECLAMATION PERMIT	4/28/76 - 1,692 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	MOFFAT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	WILLIAMS FORK STRIP #2
5	AREA	
6	LOCATION	Sec. 30,31, T 6 N, R 91 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline and truck
10	STARTUP DATE	12/1/77
11	OVERBURDEN THICKNESS	20' - 8'
12	NAME OF COAL BED	"P" seam
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Creatceous
15	COAL BED THICKNESS	
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Brasel & Sims Coal Co.
24	ADDRESS	P.O. Box 956
25	CITY, STATE, ZIP	Craig, CO 81625
26	TELEPHONE	(303) 824-9228
27	COMPANY CONTACTS	Harvey Branson (proj. mgr. -824-9467); James Zubal (gen. mgr. & supt. - 824-4167)
28	CORP. AFFILIATION	Empire Energy Corp.
29	CORP. ADDRESS	P.O. Box 68
30	LEASE INFORMATION	15 acs.
31	PRODUCTION (S. TONS)	1977 - 5,531 (started production in 12/1/77); Cumulative to 1/1/78: 5,531; 1978 (projected) 350,000; 1979 (projected) 350,000 depletion
32	EST. LIFE/RESERVES	Mine plans are to deplete the coal reserves by mid-1978; + 700,000 tons recoverable reserves
33	SALES DATA	Eastern U.S. utilities, 300,000-400,000 tpy
34	NUMBER OF EMPLOYEES	1977 - 18 to 30; 1978 (projected) 31 to 32
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-28-78

LICENSED

1	COUNTY	MONTROSE
2	COAL REGION	San Juan River
3	FIELD NAME	Nucla - Naturita
4	MINE NAME	NUCLA STRIP
5	AREA	4 mi. NW of Nucla
6	LOCATION	Sec. 25,26, T 47 N, R 16 W
7	MAP NAME (2-DEG.)	Moab
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline
10	STARTUP DATE	1959
11	OVERBURDEN THICKNESS	30' - 55'
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	Dakota Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	1' - 5.5'
16	DIP (DEGREES)	1 3/4°
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Peabody Coal. Co.
24	ADDRESS	P.O. Box 638
25	CITY, STATE, ZIP	Nucla, CO 81424
26	TELEPHONE	(303) 864-7364
27	COMPANY CONTACTS	John Smith, marketing (371-7990)
28	CORP. AFFILIATION	Denver office (303) 371-7990
29	CORP. ADDRESS	
30	LEASE INFORMATION	172.18 acs. private, permitted for 5 years
31	PRODUCTION (S. TONS)	1975 - 104,980; 1976 - 97,939; 1977 - 94,403; Cumulative to 1/1/78: 1,516,908; 1979 (projected) - 100,000 - 110,000
32	EST. LIFE/RESERVES	at least 14 yrs.
33	SALES DATA	Local - West End School District - 450 tons; Nucla power plant - 100,000 tpy
34	NUMBER OF EMPLOYEES	1975 - 18; 1976 - 22 to 26
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Twenty 25-ton trucks/day to Nucla power plant
37	RECLAMATION PERMIT	8/25/77 - 180 acs. 11/8/76 - 87 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	PITKIN
2	COAL REGION	Uinta
3	FIELD NAME	Carbondale
4	MINE NAME	BEAR CREEK
5	AREA	5 mi. W of Redstone
6	LOCATION	Sec. 21, T 10 S, R 89 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1972
11	OVERBURDEN THICKNESS	Outcrop - 3,000'
12	NAME OF COAL BED	Coal Basin "B"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7'
16	DIP (DEGREES)	13°
17	HEAT VALUE (BTU/lb)*	13,980 - 15,200
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	6
20	ASH (%)*	6.5 - 7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	Mid-Continent Coal & Coke Co.
24	ADDRESS	P.O. Box 158
25	CITY, STATE, ZIP	Carbondale, CO 81623
26	TELEPHONE	(303) 963-3213/2581
27	COMPANY CONTACTS	Edward Selan (mine supt.); John Reeves, V.P. & mgr. mines
28	CORP. AFFILIATION	Mid-Continent Coal & Coke (Wilmington, Delaware office)
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, total for all 5 Mid-Continent mines is in excess of 6,000 acs.
31	PRODUCTION (S. TONS)	1975 - 112,286; 1976 - 115,547; 1977 - 58,351; Cumulative to 1/1/78: 724,213; 1979 (projected) - 115,000 to 130,000
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	No local; all five mines (Bear Creek, Coal Basin, Dutch Creek #1 and #2, and L.S. Wood) aggregate production prior to shipment. 550,000 tpy are shipped to U.S. Steel Geneva Plant near Provo, Utah; and 400,000 tpy are shipped to Kaiser Steel, Fontana, Calif.
34	NUMBER OF EMPLOYEES	1975 - 89; 1976 - 85
35	UNION AFFILIATION	Redstone Workers
36	TRANSPORTATION	Truck 4 1/2 miles to washing plant, then 22 miles to Carbondale railhead; unit train to Utah and California steel plants.
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	885 Mcf/day; 492 - 1,843.7 cf/ton of coal mines (MESA, 1977)
40	DATE REVISED	2-28-78

LICENSED

1	COUNTY	PITKIN
2	COAL REGION	Uinta
3	FIELD NAME	Carbondale
4	MINE NAME	COAL BASIN
5	AREA	6 mi. NW of Redstone
6	LOCATION	Sec. 5, T 10 S, R 89 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1973
11	OVERBURDEN THICKNESS	Outcrop - 3,000'
12	NAME OF COAL BED	Coal Basin "B" & "C"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7'
16	DIP (DEGREES)	13°
17	HEAT VALUE (BTU/lb)*	13,980 - 15,200
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	6
20	ASH (%)*	6.5 - 7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	See Bear Creek Mine
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	Ken Henderson, mine supt.
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	See Bear Creek Mine
31	PRODUCTION (S. TONS)	1975 - 94,441; 1976 - 108,874; 1977 - 123,182; Cumulative to 1/1/78: 1,453,494; 1979 (projected) - 110,000 to 125,000
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	See Bear Creek Mine
34	NUMBER OF EMPLOYEES	1975 - 65; 1976 - 75
35	UNION AFFILIATION	Redstone Workers
36	TRANSPORTATION	Truck to unit train (see Bear Creek)
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	1,750 Mcf/day; 1,821 - 4,060.3 cf/ton coal mined (MESA, 1977)
40	DATE REVISED	2-28-78

LICENSED

1	COUNTY	PITKIN
2	COAL REGION	Uinta
3	FIELD NAME	Carbondale
4	MINE NAME	DUTCH CREEK #1
5	AREA	5 mi. W of Redstone
6	LOCATION	Sec. 17, T 10 S, R 89 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Longwall - advancing
10	STARTUP DATE	1956
11	OVERBURDEN THICKNESS	Outcrop - 2,500'
12	NAME OF COAL BED	Coal Basin "B" or Dutch Creek (30' above Rollins)
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7'
16	DIP (DEGREES)	13°
17	HEAT VALUE (BTU/lb)*	13,980 - 15,200
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	6
20	ASH (%)*	6.5 - 7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	See Bear Creek Mine
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	Charles Richardson, mine supt.
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	See Bear Creek
31	PRODUCTION (S. TONS)	1975 - 94,211; 1976 - 132,408; 1977 - 232,481; Cumulative to 1/1/78: 5,971,960; 1979 (projected) - 130,000 to 160,000
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	See Bear Creek Mine
34	NUMBER OF EMPLOYEES	1975 - 77; 1976 - 111
35	UNION AFFILIATION	Redstone Workers
36	TRANSPORTATION	Truck to unit train (see Bear Creek)
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	2,235 Mcf/day; 2,631 - 3,481.3 cf/ton of coal mined (MESA, 1977)
40	DATE REVISED	2-28-78

LICENSED

1	COUNTY	PITKIN
2	COAL REGION	Uinta
3	FIELD NAME	Carbondale
4	MINE NAME	DUTCH CREEK #2
5	AREA	5 mi. W of Redstone
6	LOCATION	Sec. 17, T 10 S, R 89 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1962
11	OVERBURDEN THICKNESS	Outcrop - 3,000'
12	NAME OF COAL BED	Dutch Creek
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7'
16	DIP (DEGREES)	14°
17	HEAT VALUE (BTU/lb)*	13,980 - 15,200
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	6
20	ASH (%)*	6.5 - 7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	See Bear Creek Mine
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	John Gabossi
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	See Bear Creek Mine
31	PRODUCTION (S. TONS)	1975 - 239,485; 1976 - 268,902; 1977 - 208,142; Cumulative to 1/1/78: 1,219,653; 1979 (projected) - 270,000 to 320,000
32	EST. LIFE/RESERVES	
33	SALES DATA	See Bear Creek Mine
34	NUMBER OF EMPLOYEES	1975 93; 1976 99
35	UNION AFFILIATION	Redstone Workers
36	TRANSPORTATION	Truck to unit train (see Bear Creek)
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	1,489 Mcf/day; 867.7 - 1,477.1 cf/ton of coal mined (MESA, 1977)
40	DATE REVISED	2-28-78

1	COUNTY	PITKIN
2	COAL REGION	Uinta
3	FIELD NAME	Carbondale
4	MINE NAME	L. S. WOOD
5	AREA	6 mi. NW of Redstone
6	LOCATION	Sec. 8, T 10 S, R 89 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Longwall
10	STARTUP DATE	1964
11	OVERBURDEN THICKNESS	Outcrop - 3,000'
12	NAME OF COAL BED	Coal Basin "B"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7'
16	DIP (DEGREES)	13°
17	HEAT VALUE (BTU/lb)*	13,980 - 15,200
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	6
20	ASH (%)*	6.5 - 7
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	See Bear Creek Mine
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	Jack Moser, supt.
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	See Bear Creek Mine
31	PRODUCTION (S. TONS)	1975 - 386,123; 1976 - 263,109; 1977 - 298,405; Cumulative to 1/1/78: 947,637; 1979 (projected) - 260,000 to 310,000
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	See Bear Creek Mine
34	NUMBER OF EMPLOYEES	1975 - 98; 1976 - 102
35	UNION AFFILIATION	Redstone Workers
36	TRANSPORTATION	Truck to unit train (see Bear Creek)
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	1,867 Mcf/day; 1,037.2 - 2,087 cf/ton of coal mined (MESA, 1977)
40	DATE REVISED	2-28-78

1	COUNTY	PITKIN
2	COAL REGION	Uinta
3	FIELD NAME	Carbondale
4	MINE NAME	THOMPSON CREEK #1
5	AREA	8 mi. SW of Carbondale
6	LOCATION	Sec. 34, T 8 S, R 89 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Longwall
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	400' - 1,300'
12	NAME OF COAL BED	"A" and "B"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	Anderson 8' (6' - 10')
16	DIP (DEGREES)	30° - 33°
17	HEAT VALUE (BTU/lb)*	13,000 - 13,900
18	SULFUR (%)*	0.6 - 1.0
19	MOISTURE (%)*	2.3 - 3.6
20	ASH (%)*	14
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	Anschutz Coal Co.
24	ADDRESS	40 years (not verified by CF & I)
25	CITY, STATE, ZIP	Carbondale, CO 81623
26	TELEPHONE	(303) 963-3440
27	COMPANY CONTACTS	Jim Morris, mine mgr.; Norm Hinchman, health & safety
28	CORP. AFFILIATION	Anschutz Coal Co., Philip Anschutz, coal and property
29	CORP. ADDRESS	1110 Denver, Club Bldg., 518 17th St., Denver, CO 80202 (303) 573-5665
30	LEASE INFORMATION	Private, Crystal River Ranch 17,000 acs.; 4-Mile Land & Cattle Co.; Federal land has been nominated for future expansion.
31	PRODUCTION (S. TONS)	(sold to new owner in 1967); 1976 - 530 (in prep.); 1977 - 7,455; Cumulative to 1/1/78: 1,087,151; 1978 (projected) 100,000 - 120,000; 1979 (projected) 300,000; 1980 (projected capacity) 1 - 1.5 million
32	EST. LIFE/RESERVES	Combined reserves (Thompson Creek Mine #1 and #3) in excess of 85 million tons.
33	SALES DATA	(Combined) No local; initial clean-up coal was non-metallurgical and sold to Public Service Co. of Colo.; present sales to CF & I Steel in Pueblo. Negotiating contracts with Kaiser Steel and U.S. Steel, also looking at Japan, Taiwan, and Korean markets.
34	NUMBER OF EMPLOYEES	1976 40; 1977 150, combined (#1 and #3); 1979 (projected) 150 to 175; (projected capacity) 300 to 350
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck 11.5 miles to railhead at Carbondale; DRGW unit train to Los Angeles docks. If production reaches capacity, may build overland conveyor 8.5 miles long.
37	RECLAMATION PERMIT	1/25/78 - 12.67 acs.
38	STATUS OF MINE	Preparation
39	METHANE EMISSIONS	18 Mcf/day; 159.2 cf/ton of coal mined. (MESA, 1977)
40	DATE REVISED	2-24-78

1	COUNTY	PITKIN
2	COAL REGION	Uinta
3	FIELD NAME	Carbondale
4	MINE NAME	THOMPSON CREEK #3
5	AREA	8 mi. SW of Carbondale
6	LOCATION	Sec. 34, T 8 S, R 89 W
7	MAP NAME (2-DEG.)	Leadville
8	TYPE OF MINE	Underground
9	MINING METHOD	Longwall
10	STARTUP DATE	1977 (1955)
11	OVERBURDEN THICKNESS	400' - 1,300'
12	NAME OF COAL BED	Sunshine
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	Anderson 9'; 1' - 7'; 3' - 5 1/2'
16	DIP (DEGREES)	27° - 33°
17	HEAT VALUE (BTU/lb)*	13,000 - 13,900
18	SULFUR (%)*	0.6 - 1.0
19	MOISTURE (%)*	2.3 - 3.6
20	ASH (%)*	14
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	See Thompson Creek #1
24	ADDRESS	"
25	CITY, STATE, ZIP	"
26	TELEPHONE	"
27	COMPANY CONTACTS	"
28	CORP. AFFILIATION	"
29	CORP. ADDRESS	"
30	LEASE INFORMATION	Private
31	PRODUCTION (S. TONS)	1976 - 150 (in prep.); 1977 - 8,413; Cumulative, 1955 to 1/1/78: 680,769; 1978 (projected) - 100,00 - 250,000; 1979 (projected) - 500,000
32	EST. LIFE/RESERVES	See Thompson Creek #1
33	SALES DATA	Combined with Thompson Creek #1 production.
34	NUMBER OF EMPLOYEES	1976 18; 1979 (projected) 150 - 175
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck to railhead. See Thompson Creek #1
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Preparation
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	RIO BLANCO
2	COAL REGION	Uinta
3	FIELD NAME	Danforth Hills
4	MINE NAME	RIENAU #2
5	AREA	6 mi. NE of Meeker
6	LOCATION	Sec. 29, T 2 N, R 93 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	Reopened 12/77
11	OVERBURDEN THICKNESS	150'
12	NAME OF COAL BED	Rienau
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	20' - 24'
16	DIP (DEGREES)	18°
17	HEAT VALUE (BTU/lb)*	13,200 - 13,400
18	SULFUR (%)*	0.4
19	MOISTURE (%)*	10 - 11
20	ASH (%)*	2 - 4
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Sewanee Mining Co., Inc.
24	ADDRESS	P.O. Box 130
25	CITY, STATE, ZIP	Meeker, CO 81641
26	TELEPHONE	(303) 878-5338
27	COMPANY CONTACTS	Carroll Laufmann
28	CORP. AFFILIATION	Sewanee contracts Northern Coal Co. for labor and equipment (DBA Sewanee Mining Co.)
29	CORP. ADDRESS	P.O. Box 957, Meeker, CO 81641
30	LEASE INFORMATION	Private; Federal, 320 acs. Adjoined by additional Federal coal land.
31	PRODUCTION (S. TONS)	1975 - closed by American Fuels Corp.; 1976 - 0 (in prep.); 1977 - 8,836; Cumulative to 1/1/78: 8,836; 1978 (projected) 20,000 - 40,000; projected capacity unknown
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Local
34	NUMBER OF EMPLOYEES	1976 - 5; 1978 (projected) - 8
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	APEX #2
5	AREA	6 mi. NW of Oak Creek
6	LOCATION	Sec. 22, T 4 N, R 86 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner - room and pillar
10	STARTUP DATE	1966
11	OVERBURDEN THICKNESS	400 ' max.
12	NAME OF COAL BED	No. 2 Pinnacle
13	GEOLOGIC UNIT	Iles Formation - lower Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	4.5' - 6.0'
16	DIP (DEGREES)	3°
17	HEAT VALUE (BTU/lb)*	12,400
18	SULFUR (%)*	0.5 - 0.6
19	MOISTURE (%)*	6 - 7.5
20	ASH (%)*	3 - 5
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Sunland Mining Corp.
24	ADDRESS	17,000 acs.
25	CITY, STATE, ZIP	Oak Creek, CO 80467
26	TELEPHONE	(303) 736-2376
27	COMPANY CONTACTS	Kenneth Henderson, Pres.; Shirley James, acct.; David Canning, eng.
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	All Federal, 200 acs.; expansion dependent upon 3 contiguous leases or upon economics of alternative mining plans to circumvent the adjacent Federal coal land not leased.
31	PRODUCTION (S. TONS)	1975 - 18,464; 1976 - 14,209; 1977 - 10,391; Cumulative to 1/1/78: 145,272; 1980 (projected) - 150,000 - 250,000
32	EST. LIFE/RESERVES	At least 5 yrs.
33	SALES DATA	Local; spot to Cameo power plant, (Mesa County, CO), Davenport, IA (Ralston Purina) and Janesville, Wisc. (Gen. Motors).
34	NUMBER OF EMPLOYEES	1975 - 7; 1976 - 11; 1977 - 21 to 22; 1980 (projected) - 50
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	Truck 6 mi. from tipple to rail at Oak Creek.
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	11.4 Mcf/day; 190 cf/ton of coal mined. (MESA, 1977)
40	DATE REVISED	2-24-78

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	BLAZER
5	AREA	5 mi. NW of Milner
6	LOCATION	Sec. 24, 26, T 7 N, R 87 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	1978?
11	OVERBURDEN THICKNESS	1,000' max.
12	NAME OF COAL BED	Pinnacle (?)
13	GEOLOGIC UNIT	Upper Iles Formation - Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	9'
16	DIP (DEGREES)	5°
17	HEAT VALUE (BTU/lb)*	10,500 - 12,000
18	SULFUR (%)*	0.5 - 0.6
19	MOISTURE (%)*	8 - 9
20	ASH (%)*	9 - 10
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Blazer Fuels Co.
24	ADDRESS	Mancos Shale, Mesaverde Group
25	CITY, STATE, ZIP	Louisville, CO 80027
26	TELEPHONE	(303) 665-4254
27	COMPANY CONTACTS	James Tatum
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	12025 E. 45th Ave.
31	PRODUCTION (S. TONS)	1977 - 0; Cumulative to 1/1/78: 9,047
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	No plans
34	NUMBER OF EMPLOYEES	197(?) (projected) - 30
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	No production
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	EDNA STRIP
5	AREA	4 mi. N of Oak Creek
6	LOCATION	Sec. (var.) T 4 N, R 85, 86 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline
10	STARTUP DATE	1946 (1924)
11	OVERBURDEN THICKNESS	40' - 60'
12	NAME OF COAL BED	Wadge
13	GEOLOGIC UNIT	Williams Fork Formation, upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6'
16	DIP (DEGREES)	7°
17	HEAT VALUE (BTU/lb)*	10,400 - 12,080
18	SULFUR (%)*	0.6 - 2.1
19	MOISTURE (%)*	7.7 - 12.5
20	ASH (%)*	3.3 - 13.2
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Pittsburgh Midway Coal Mining Co.
24	ADDRESS	P.O. Box 176
25	CITY, STATE, ZIP	Oak Creek, CO 80467
26	TELEPHONE	(303) 736-8111
27	COMPANY CONTACTS	Mine phone (303) 736-2526
28	CORP. AFFILIATION	Gulf Minerals Resources Co. (subsid. of Gulf Oil Corp.)
29	CORP. ADDRESS	Gulf Bldg., 1720 South Bellaire St., Denver, CO 80222 (303) 758-1700 x332, Mr. Broders; x333, John Smith (land); x399, Mr. King (marketing)
30	LEASE INFORMATION	Private; 2 State: 3,040 acs. Routt Co.; 640 acs. Moffat Co.; adjacent Federal leases needed.
31	PRODUCTION (S. TONS)	1975 - 760,381; 1976 - 1,140,198; 1977 - 1,081,225; Cumulative, 1924 to 1/1/78: 14,404,213; 1980 and 1981 (projected): 1,200,000 tpy.
32	EST. LIFE/RESERVES	20 million tons reserve or 15 years' production. Depletion by 1994 at 1.2 million tpy production. Expansion on adjacent Federal land dependent upon lease acquisition.
33	SALES DATA	Colorado Springs - 370,000 tons; Ideal Cement - 220,000; Fremont, Nebraska - 100,000; Central Ill. Light - 300,000; Ashgrove Cement, Nebraska - 45,000 tons; G.W. Sugar, Nebraska & Colorado - 85,000; Local retail - 20,000; Misc. Spot - 25,000. Grand total = 1.2 million tpy.
34	NUMBER OF EMPLOYEES	1975 - 52; 1976 - 74; 1977 - 75.
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	30 100-ton unit train cars, 3/week; 25 100-ton unit train cars, 2/week; unit train, 1600 tons/week by rail, truck, misc.
37	RECLAMATION PERMIT	6/24/74 - 205 acs; 3/23/76 - 210 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	ENERGY STRIP #1
5	AREA	6 mi. W of Haybro
6	LOCATION	Sec. 8, T4N, R86W; Sec. 32,33, T5N, R86W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline
10	STARTUP DATE	1962
11	OVERBURDEN THICKNESS	2,000' max.
12	NAME OF COAL BED	Wadge
13	GEOLOGIC UNIT	Williams Fork Formation, upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7.0 - 10.0
16	DIP (DEGREES)	10°
17	HEAT VALUE (BTU/lb)*	11,240 - 11,380
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	10.1 - 10.4
20	ASH (%)*	8 - 9
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Energy Fuels
24	ADDRESS	Mesaverde Group
25	CITY, STATE, ZIP	Steamboat Springs, CO 80477
26	TELEPHONE	(303) 893-0845
27	COMPANY CONTACTS	Jay Ferguson, mining eng. (893-2234); Ron Jones, marketing (623-8317)
28	CORP. AFFILIATION	Denver office
29	CORP. ADDRESS	3 Park Central, Suite 445, 1515 Arapahoe St., Denver, CO 80202 (303-623-8317)
30	LEASE INFORMATION	Private(?) acs.; Federal, 14,000 acs.; 1 State, 80 acs.; 2,690 acs. received from Morgan Coal Co. 2-1-77. Adjacent Federal leases needed.
31	PRODUCTION (S. TONS)	1975 - 835,792; 1976 - 1,478,922; 1977 - 3,048,584 (capacity not reached due to Federal leasing problems); Cumulative to 1/1/78: 12,258,423; 197? (projected) - 1.5 to 1.7 million tpy
32	EST. LIFE/RESERVES	Energy #1, #2 and #3 combined have reserves for 10 - 30 yrs. (Energy #1 has 4 years reserves at 4 million tpy production rate). Mine expansion dependent upon Federal leases to the southwest of mine.
33	SALES DATA	Public Service Co. of Colo., Cherokee plant, and others, 3.1 million tpy for 10 years; Illinois Power & Light, 830,000 tpy for 10 years.
34	NUMBER OF EMPLOYEES	1975 - 108; 1976 - 155
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Unit train, 59 100-ton cars, 5 - 6 times/week to Cherokee; 73 100-ton cars to Illinois every 3 days.
37	RECLAMATION PERMIT	5/27/75 and 11/14/75 for 401 and 301 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	ENERGY STRIP #2
5	AREA	7 mi. NW of Haybro
6	LOCATION	Sec. 19,30, T 5 N, R 86 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline
10	STARTUP DATE	1972
11	OVERBURDEN THICKNESS	2,000' max.
12	NAME OF COAL BED	Fish Creek
13	GEOLOGIC UNIT	Williams Fork Formation, upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7.0' - 10.0'
16	DIP (DEGREES)	10°
17	HEAT VALUE (BTU/lb)*	11,300
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	10.0
20	ASH (%)*	8 - 9
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	See Energy Strip #1 - operating from same tipple
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	See Energy Strip #1.
31	PRODUCTION (S. TONS)	1975 - 1,240,529; 1976 - 1,009,511; 1977 - 416,451; Cumulative to 1/1/78: 3,449,891; 1978 (projected) 1 - 1.1 million tons
32	EST. LIFE/RESERVES	At most, 2 years; almost depleted. (See Energy Strip #1)
33	SALES DATA	See Energy Strip #1
34	NUMBER OF EMPLOYEES	1975 - 45; 1976 - 10
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Train, See Energy #1
37	RECLAMATION PERMIT	8/25/77 - 145 acs., 2,413 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	ENERGY STRIP #3
5	AREA	5 mi. SE of Milner
6	LOCATION	Sec. 1, 2, T 5 N, R 86 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline
10	STARTUP DATE	1974
11	OVERBURDEN THICKNESS	2,000' max.
12	NAME OF COAL BED	Wadge
13	GEOLOGIC UNIT	Williams Fork Formation, upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	4.5' - 9.0'
16	DIP (DEGREES)	15°
17	HEAT VALUE (BTU/lb)*	11,300
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	10
20	ASH (%)*	8 - 9
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	See Energy Strip #1
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	See Energy Strip #1.
31	PRODUCTION (S. TONS)	1975 - 527,083; 1976 - 518,881; 1977 - 385,520; Cumulative to 1/1/78: 1,443,350; 1978 (projected) 500,000
32	EST. LIFE/RESERVES	3 - 4 yrs. (See Energy #1)
33	SALES DATA	See Energy Strip #1
34	NUMBER OF EMPLOYEES	1975 - 33; 1976 - 25 to 30
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Train, See Energy Strip #1
37	RECLAMATION PERMIT	As of 6/16/75 - 94 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-28-78

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	HAYDEN GULCH STRIP
5	AREA	10 mi. S of Hayden
6	LOCATION	Sec. 30, 31, T 5 N, R 88 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Scrapers, front end loaders
10	STARTUP DATE	11/78 - 1/79
11	OVERBURDEN THICKNESS	120' to bottom seam
12	NAME OF COAL BED	1, 2, 3, 4, 5 from top to bottom
13	GEOLOGIC UNIT	Williams Fork Formation
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	6° NE
16	DIP (DEGREES)	10,000
17	HEAT VALUE (BTU/lb)*	0.4
18	SULFUR (%)*	17
19	MOISTURE (%)*	6
20	ASH (%)*	
21	RANK OF COAL	
22	USE OF COAL	Steam
23	MINE OPERATOR	Yampa Mining Co. (subsid. of Morrison-Knudsen Co., Inc.)
24	ADDRESS	equipment
25	CITY, STATE, ZIP	Boise, ID 83729
26	TELEPHONE	(208) 345-5000
27	COMPANY CONTACTS	R. L. Thorton, project mgr.
28	CORP. AFFILIATION	H-G Coal Co. (gen. partnership Hanna Mining Co.-W.R. Grace Co.)
29	CORP. ADDRESS	3333 Quebec St., Suite 8800, Denver, CO 80207 (Charles Margolf, Dir. (303) 399-0779)
30	LEASE INFORMATION	
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; 1979 (projected) 750,000 startup; 19?? (projected) expansion to 1 million
32	EST. LIFE/RESERVES	Unknown life/over 8 million tons reserve. Planned capacity is 750,000 tpy.
33	SALES DATA	Celanese Chemical Co. Pampa plant (7 - 9 year contract for avg. of 540,000 tpy starting 1979) (and S.W. Public Service Co., Amarillo, Texas).
34	NUMBER OF EMPLOYEES	1979 (projected) 62 (local)
35	UNION AFFILIATION	
36	TRANSPORTATION	Truck 8 miles to load out on DRGW and ATSF to Texas 1,400 miles (73 100-ton cars on car unit trains every 2 - 3 days)
37	RECLAMATION PERMIT	1/20/78 - 600 acs.
38	STATUS OF MINE	Preparation
39	METHANE EMISSIONS	
40	DATE REVISED	3-1-78

LICENSED

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	MEADOWS #1 STRIP ("Eilt's)
5	AREA	5 mi. W of Milner
6	LOCATION	Sec. 23-26, T 6 N, R 87 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Scrapers, small dragline
10	STARTUP DATE	1978
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	Pinnacle, Blacksmith, Wolf Creek
13	GEOLOGIC UNIT	Williams Fork Formation, upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6 - 8'
16	DIP (DEGREES)	11°42'
17	HEAT VALUE (BTU/lb)*	11,000
18	SULFUR (%)*	0.45
19	MOISTURE (%)*	9
20	ASH (%)*	8
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Sun Coal Co., Inc.
24	ADDRESS	P.O. Box 26
25	CITY, STATE, ZIP	Milner, CO 80477
26	TELEPHONE	(303) 824-5692
27	COMPANY CONTACTS	Gregory H. Hoyl, Pres.
28	CORP. AFFILIATION	A. T. Massey Coal Co.
29	CORP. ADDRESS	1536 Cole Blvd., Denver West Office Park, Golden, CO 80401
30	LEASE INFORMATION	Private, 199 acs. leased from Grassy Creek Coal Co. and Eilts. Small part of Sec. 14 has Federal coal which Sun Coal Co. proposes to mine as "nuisance coal" if land is leased for short term.
31	PRODUCTION (S. TONS)	1977 - 62,912; Cumulative to 1/1/78: 62,912; (Sun Coal Co. contracts W. R. Hall Construction of Steamboat Springs for equipment and labor) 1978 (projected) 20,000 per month = 240,000/yr.
32	EST. LIFE/RESERVES	Expansion may be as Meadows #2 and #3
33	SALES DATA	Central Illinois Light
34	NUMBER OF EMPLOYEES	1977 - 27; 1978 (projected) 27
35	UNION AFFILIATION	Non-union
36	TRANSPORTATION	
37	RECLAMATION PERMIT	4/22/77 - 165 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-28-78

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	SENECA #2 STRIP
5	AREA	7 mi. SE of Hayden
6	LOCATION	Sec. 34,36,T6N, R87W; Sec. 1,2, T5N,R87W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline
10	STARTUP DATE	1965
11	OVERBURDEN THICKNESS	Outcrop - 30'
12	NAME OF COAL BED	Wadge
13	GEOLOGIC UNIT	Williams Fork Formation, upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	9'
16	DIP (DEGREES)	12 1/2°
17	HEAT VALUE (BTU/lb)*	10,500 - 11,000
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	9 - 10
20	ASH (%)*	9.5
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Seneca Coal, Ltd.
24	ADDRESS	Drawer D
25	CITY, STATE, ZIP	Hayden, CO 81639
26	TELEPHONE	(303) 276-3559
27	COMPANY CONTACTS	J. F. Lake, Pres. Rocky Mtn. Div.; F. W. Gilbert, mine supt.
28	CORP. AFFILIATION	Peabody Coal Co.
29	CORP. ADDRESS	12075 E. 45th Ave., Denver, CO 80239 (303) 371-7990
30	LEASE INFORMATION	3,155 acs. private and State only; all Federal coal is depleted. Adjacent preference rights leased needed.
31	PRODUCTION (S. TONS)	1975 - 710,313; 1976 - 1,383,508; 1977 - 1,291,025; Cumulative to 1/1/78: 8,704,241; 1980 (projected) 1.2 million
32	EST. LIFE/RESERVES	13 yrs. at 1.2 million tpy (State lands); expansion dependent upon preference rights lease approval under Jay Thompson property.
33	SALES DATA	No local; Hayden power plant only.
34	NUMBER OF EMPLOYEES	1975 29; 1976 58; 1977 60
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	25-ton dump trucks, 220/day, 250 days/year.
37	RECLAMATION PERMIT	12/15/77 - 144 acs. 11/18/76 - 144,743 acs.
38	STATUS OF MINE	Producing
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

LICENSED

1	COUNTY	WELD
2	COAL REGION	Denver
3	FIELD NAME	Boulder-Weld
4	MINE NAME	EAGLE
5	AREA	3.5 mi. E of Erie
6	LOCATION	Sec. 15, T 1 N, R 68 W
7	MAP NAME (2-DEG.)	Greeley
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1938
11	OVERBURDEN THICKNESS	385' max.
12	NAME OF COAL BED	Laramie No. 3
13	GEOLOGIC UNIT	Laramie Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7' - 10'
16	DIP (DEGREES)	9°
17	HEAT VALUE (BTU/lb)*	9,500 - 10,400
18	SULFUR (%)*	0.2 - 0.5
19	MOISTURE (%)*	16.8 -23.5
20	ASH (%)*	3.6 - 8.2
21	RANK OF COAL	Subbituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Imperial Coal Co.
24	ADDRESS	
25	CITY, STATE, ZIP	Erie, CO 80516
26	TELEPHONE	(303) 828-3283
27	COMPANY CONTACTS	Charles Reese, supt.; George Brennan, Pres.
28	CORP. AFFILIATION	(Denver office) Imperial Coal Co.
29	CORP. ADDRESS	1010 Western Federal Savings Bldg. (303) 837-8355
30	LEASE INFORMATION	Private - 2,000 acs.
31	PRODUCTION (S. TONS)	1975 - 162,732; 1976 - 32,238; 1977 - 0; Cumulative to 1/1/78: 7,953,470
32	EST. LIFE/RESERVES	1,000,000 tons remaining reserve.
33	SALES DATA	Local; combined with Lincoln Mine production for Public Service Co. of Colorado in Denver and unknown quantity to Adolph Coors Company, Golden.
34	NUMBER OF EMPLOYEES	1975 - 59; 1976 - 7
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	Rail (UP) to Public Service Co.
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Closed
39	METHANE EMISSIONS	7 Mcf/day; 28 cf/ton of coal mined; 4.6 cf/ton of coal mined (MESA, 1977)
40	DATE REVISED	2-24-78

1	COUNTY	WELD
2	COAL REGION	Denver
3	FIELD NAME	Boulder-Weld
4	MINE NAME	LINCOLN
5	AREA	3 mi. S of Dacono
6	LOCATION	Sec. 24, T 1 N, R 68 W
7	MAP NAME (2-DEG.)	Greeley
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1976
11	OVERBURDEN THICKNESS	425' max.
12	NAME OF COAL BED	Laramie No. 3
13	GEOLOGIC UNIT	Laramie Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	8' - 12'
16	DIP (DEGREES)	8°
17	HEAT VALUE (BTU/lb)*	9,100 - 9,500
18	SULFUR (%)*	0.3 - 0.4
19	MOISTURE (%)*	24
20	ASH (%)*	6.5 - 8.5
21	RANK OF COAL	Subbituminous
22	USE OF CCAL	Steam
23	MINE OPERATOR	Imperial Coal Co. (see Eagle Mine)
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	Sunflower Energy
29	CORP. ADDRESS	770 Grant Street, Suite 100, Denver, CO
30	LEASE INFORMATION	Private, 4,280 acs.
31	PRODUCTION (S. TONS)	1976 - 34,636 startup; 1977 - 105,103; Cumulative to 1/1/78: 3,580,481
32	EST. LIFE/RESERVES	Temporarily closed - proposed reopening date early 1978; 21 million tons reserve.
33	SALES DATA	Adolph Coors Company contract for power plant coal
34	NUMBER OF EMPLOYEES	1976 - 58
35	UNION AFFILIATION	UMW
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Temp. closed
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

PROPOSED

1	COUNTY	ADAMS
2	COAL REGION	Denver
3	FIELD NAME	Boulder-Weld
4	MINE NAME	WATKINS LIGNITE STRIP
5	AREA	N. of Watkins
6	LOCATION	Sec. var., T 2,3,4, R 64, 65, 66
7	MAP NAME (2-DEG.)	Denver
8	TYPE OF MINE	Surface
9	MINING METHOD	Shovel and/or dragline
10	STARTUP DATE	1979
11	OVERBURDEN THICKNESS	180'
12	NAME OF COAL BED	Watkins, Lowry, Bennett
13	GEOLOGIC UNIT	Dawson Formation
14	GEOLOGIC AGE	Paleocene
15	COAL BED THICKNESS	25'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	4,000
18	SULFUR (%)*	0.3 - 0.4
19	MOISTURE (%)*	30
20	ASH (%)*	30
21	RANK OF COAL	Lignite
22	USE OF COAL	Steam
23	MINE OPERATOR	
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	(303) 777-2525
27	COMPANY CONTACTS	John W. Hand, V.P.
28	CORP. AFFILIATION	Cameron Engineering, Inc.
29	CORP. ADDRESS	1315 S. Clarkson, Denver, CO 80210
30	LEASE INFORMATION	17 Private, 10,667 acs.; 8 Federal, 14,314 acs.; 2 State, 4,000 acs.; all in Arapahoe, Adams and Elbert counties.
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; 1983 (projected) 5 million tpy; 1984 (projected) 15 million tpy
32	EST. LIFE/RESERVES	30 yrs.
33	SALES DATA	Mine-mouth coal gasification plant yielding approx. 250 million cubic feet gas/day. See Station Creek Lignite Mine, Elbert Co.)
34	NUMBER OF EMPLOYEES	1982 (projected) 2,000 construction; 1983 (projected) 960 operations
35	UNION AFFILIATION	
36	TRANSPORTATION	Rail (UP)
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	12-77

PROPOSED

1	COUNTY	DELTA
2	COAL REGION	Uinta
3	FIELD NAME	Somerset
4	MINE NAME	FARMERS
5	AREA	4 mi. NE of Paonia
6	LOCATION	Sec. 5-8, 17-20, T 13 S, R 91 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner
10	STARTUP DATE	1980
11	OVERBURDEN THICKNESS	Outcrop - 2,200'
12	NAME OF COAL BED	"B", "C", "E"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	5' - 11' (3 seams)
16	DIP (DEGREES)	4 1/2°
17	HEAT VALUE (BTU/lb)*	11,500
18	SULFUR (%)*	0.4 - 0.6
19	MOISTURE (%)*	6 - 7
20	ASH (%)*	3.2 - 5.4
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Pittsburgh & Midway Coal Mining Co. (Gulf Mineral Res.)
24	ADDRESS	Gulf Bldg., 1720 S. Bellaire St.
25	CITY, STATE, ZIP	Denver, CO 80222
26	TELEPHONE	(303) 758-1700
27	COMPANY CONTACTS	F. V. Witaschek, Water Resources Advisor
28	CORP. AFFILIATION	Kansas City office
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, 40 acs.; Federal, 280 acs.
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; projected third year - 125,000; projected fourth year - 700,000; years 5 - 21 planned capacity - 1,000,000, contingent upon acquisition of additional leases
32	EST. LIFE/RESERVES	28 yrs.
33	SALES DATA	Not available
34	NUMBER OF EMPLOYEES	1981 (projected) 340
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	(Project area covers 3,950 acs.)
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	4-30-77

1	COUNTY	ELBERT
2	COAL REGION	Denver
3	FIELD NAME	Buick-Matheson area
4	MINE NAME	LIMON STRIP
5	AREA	4 mi. NW of Cedar Point
6	LOCATION	Sec. 16, 18, T 8 S, R 58 W
7	MAP NAME (2-DEG.)	Limon
8	TYPE OF MINE	Surface
9	MINING METHOD	Scrapers, loaders, bulldozers
10	STARTUP DATE	1978?
11	OVERBURDEN THICKNESS	Outcrop - 65'
12	NAME OF COAL BED	Unknown
13	GEOLOGIC UNIT	Laramie Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	10' - 22' upper, 3' - 8' lower
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	7,000
18	SULFUR (%)*	0.17 - 0.43
19	MOISTURE (%)*	33
20	ASH (%)*	11 - 17
21	RANK OF COAL	Lignite
22	USE OF COAL	Steam
23	MINE OPERATOR	Limon Fuels, c/o Woodward-Clyde Consultants
24	ADDRESS	2909 W. 7th Avenue
25	CITY, STATE, ZIP	Denver, CO
26	TELEPHONE	(303) 573-7882
27	COMPANY CONTACTS	Jack Lawrence (604-627-7156)
28	CORP. AFFILIATION	Transcontinental Coal & Exploration
29	CORP. ADDRESS	Room 3707, Bank of Calif. Center, 900 4th Avenue, Seattle, Wash. 98164 (206-624-5333)
30	LEASE INFORMATION	
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; 1978 (projected) 800,000?
32	EST. LIFE/RESERVES	12 million tons
33	SALES DATA	Local sales; possible sales to utilities
34	NUMBER OF EMPLOYEES	1978 (projected) 60
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	11/26/77 - 80 acs.
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	2-77

1	COUNTY	ELBERT
2	COAL REGION	Denver
3	FIELD NAME	Boulder-Weld
4	MINE NAME	STATION CREEK LIGNITE
5	AREA	5 mi. SE of Kiowa
6	LOCATION	Sec. (var.), T 8,9 S, R 61,62 W
7	MAP NAME (2-DEG.)	Denver
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline - shovels
10	STARTUP DATE	1982
11	OVERBURDEN THICKNESS	140'
12	NAME OF COAL BED	Comanche
13	GEOLOGIC UNIT	Dawson Formation
14	GEOLOGIC AGE	Paleocene
15	COAL BED THICKNESS	8' - 10'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Lignite
22	USE OF COAL	Steam
23	MINE OPERATOR	See Watkins Lignite Mine
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	See Watkins Lignite Mine
29	CORP. ADDRESS	
30	LEASE INFORMATION	
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; 1980 (projected) 5 million
32	EST. LIFE/RESERVES	30 yrs.
33	SALES DATA	Mine-mouth coal gasification plant
34	NUMBER OF EMPLOYEES	(projected) 50
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	11-77

1	COUNTY	GUNNISON
2	COAL REGION	Uinta
3	FIELD NAME	Somerset
4	MINE NAME	MOUNT GUNNISON #1
5	AREA	1 mi. SE of Somerset
6	LOCATION	Sec. 16, T 13, 14 S, R 90 W
7	MAP NAME (2-DEG.)	Montrose
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	1981
11	OVERBURDEN THICKNESS	1,500' - 1,600' max.
12	NAME OF COAL BED	"F", "D", "B"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	8', 8', 25'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	11,846
18	SULFUR (%)*	0.47
19	MOISTURE (%)*	10.4
20	ASH (%)*	4.5
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Ernest Kuchta, mgr. underground mining
24	ADDRESS	1500 Security Life Bldg.
25	CITY, STATE, ZIP	Denver, CO 80202
26	TELEPHONE	(303) 573-3690
27	COMPANY CONTACTS	Gerald Rupp (303-573-3690)
28	CORP. AFFILIATION	Atlantic Richfield Co. (ARCO)
29	CORP. ADDRESS	1500 Security Life Bldg., Denver, CO 80202 (303-573-3518)
30	LEASE INFORMATION	Federal, 7,462 acs.; private, 3,800 acs., 1,540 acs.
31	PRODUCTION (S. TONS)	1976 Test adit "Sylvester Gulch" yielded 1,500 tons in 1976. Cumulative to 1/1/78: none. Projected production: 1981 - 420,000 tons; 1982 - 840,000 tons; 1983 - 1,260,000 tons; 1984 - 1,680,000 tons; 1985 - 2,100,000 tons
32	EST. LIFE/RESERVES	25-30 yrs.; 118 million tons in place; est. 50% recoverable.
33	SALES DATA	Local and utilities
34	NUMBER OF EMPLOYEES	1979 233 construction; 1981 (projected) 288; 1985 (projected) 576
35	UNION AFFILIATION	
36	TRANSPORTATION	DRGW, truck
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	1-13-78

1	COUNTY	HUERFANO
2	COAL REGION	Raton Mesa
3	FIELD NAME	Walsenburg
4	MINE NAME	NO-NAME STRIP (Calumet #2)
5	AREA	Near Walsenburg
6	LOCATION	Sec. (var.), T 27 S, R 67 W
7	MAP NAME (2-DEG.)	Trinidad
8	TYPE OF MINE	Surface
9	MINING METHOD	
10	STARTUP DATE	1979
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	Vermejo
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	12,900
18	SULFUR (%)*	0.5
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Groves-Calder
24	ADDRESS	Mt. Garfield Formation, Mesaverde Group
25	CITY, STATE, ZIP	Walsenburg, CO 81089
26	TELEPHONE	(303) 738-1830
27	COMPANY CONTACTS	Bob Mapes, project mgr.
28	CORP. AFFILIATION	Joint venture of Western States Minerals and Calder & Co.
29	CORP. ADDRESS	105 East Kiowa (Suite 200), Colorado Springs, CO 80903 phone (303) 475-7005); 1780 S. Bellaire (Suite 301), Denver, CO 80222, phone (303) 232-1636
30	LEASE INFORMATION	47 private leases, 9,400 acs. in Huerfano County (and Las Animas County); 2 State leases, 1,200 acs.
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; 1979 (projected) 50,000 - 100,000 startup
32	EST. LIFE/RESERVES	
33	SALES DATA	
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

PROPOSED

1	COUNTY	JACKSON
2	COAL REGION	North Park
3	FIELD NAME	North Park
4	MINE NAME	GRIZZLY CREEK STRIP
5	AREA	4 mi. S of Hebron
6	LOCATION	Sec. var., T 6,7 N, R 80,81 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Truck and shovel or scrapers
10	STARTUP DATE	1982-1983
11	OVERBURDEN THICKNESS	10' - 200'
12	NAME OF COAL BED	Riach
13	GEOLOGIC UNIT	Coalmont Formation
14	GEOLOGIC AGE	Paleocene-Eocene
15	COAL BED THICKNESS	25'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	8,300 - 8,500
18	SULFUR (%)*	0.4 - 0.7
19	MOISTURE (%)*	15 - 20
20	ASH (%)*	12 - 14
21	RANK OF COAL	Subbituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Zapata Colorado Mining Corp.
24	ADDRESS	7503 Marin Drive
25	CITY, STATE, ZIP	Englewood, CO 80110
26	TELEPHONE	(303) 773-2977
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, 3,484 acs.; State, 776 acs.
31	PRODUCTION (S. TONS)	1975 - 65,000; 1976 - 0; 1977 - 0; Cumulative to 1/1/78: 65,000; 1982-3 (projected) 500,000; 1983 (projected) 1.5 million (designed capacity)
32	EST. LIFE/RESERVES	20 yrs.; 25 - 30 million tons reserve
33	SALES DATA	Possible out-of-state utilities.
34	NUMBER OF EMPLOYEES	1982 (projected) 150 construction; 1983 (projected) 125 operations
35	UNION AFFILIATION	
36	TRANSPORTATION	Truck to Hebron to UP Rwy.
37	RECLAMATION PERMIT	(Project area covers 4,000 acs.) Last permit in 4/21/75 for 16 acs.
38	STATUS OF MINE	Closed.
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

PROPOSED

1	COUNTY	LAS ANIMAS
2	COAL REGION	Raton Mesa
3	FIELD NAME	Trinidad
4	MINE NAME	LORENCITO
5	AREA	2 mi. E of Weston
6	LOCATION	Sec. (var.), T 33,34 S, R 66,67 W
7	MAP NAME (2-DEG.)	Trinidad
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner and longwall
10	STARTUP DATE	1981-1982
11	OVERBURDEN THICKNESS	200' - 900'
12	NAME OF COAL BED	Primero
13	GEOLOGIC UNIT	Raton Formation
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	4' - 9'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	13,700
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	6
20	ASH (%)*	9
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	Freeport Coal Co.
24	ADDRESS	Mesaverde Group
25	CITY, STATE, ZIP	Denver, CO 80202
26	TELEPHONE	(303) 988-0224
27	COMPANY CONTACTS	R.W. Stewart
28	CORP. AFFILIATION	Freeport Minerals Co. of New York City
29	CORP. ADDRESS	
30	LEASE INFORMATION	18,000 acs. controlled by Freeport 15 miles SW of Trinidad near Purgatoire River; private lease from M.G.P. Enterprises for 20 yrs.
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; 1981 (projected) 500,000 startup; 1982 (projected) 1,000,000
32	EST. LIFE/RESERVES	
33	SALES DATA	Eastern steel mills (no firm contracts)
34	NUMBER OF EMPLOYEES	1982 (projected) 400 - 500
35	UNION AFFILIATION	
36	TRANSPORTATION	2.5 miles to Weston, C & W Rwy spur; ATSF unit train.
37	RECLAMATION PERMIT	17,000 acs.
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	2-13-78

PROPOSED

1	COUNTY	MESA
2	COAL REGION	Uinta
3	FIELD NAME	Book Cliffs
4	MINE NAME	ANCHOR-TRESNER UNIT
5	AREA	12 miles north of Fruita
6	LOCATION	Sec. (var.), T 7,8,9 S, R 101 W
7	MAP NAME (2-DEG.)	Grand Junction
8	TYPE OF MINE	Underground
9	MINING METHOD	Longwall
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	Outcrop - 1,600'
12	NAME OF COAL BED	Anchor, Cameo
13	GEOLOGIC UNIT	Mancos Shale, Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	12,000
18	SULFUR (%)*	0.6 - 1.0
19	MOISTURE (%)*	8 (washed)
20	ASH (%)*	8
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Coal Mining Partners, c/o Charles Silengo
24	ADDRESS	Anschutz Coal Co., Philip Anschutz, coal and property
25	CITY, STATE, ZIP	Grand Junction, CO 81501
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	14,000± acs.
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; (startup) 75,000 - 125,000; (following year) 300,000; (planned capacity) 2 - 4 million
32	EST. LIFE/RESERVES	
33	SALES DATA	No local; out-of-state utilities or industry.
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	Truck to DRGW unit trains
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	12/77

1	COUNTY	MESA
2	COAL REGION	Uinta
3	FIELD NAME	Book Cliff
4	MINE NAME	MCGINLEY #1
5	AREA	13 mi. NE of Fruita
6	LOCATION	Sec. 5, T 9 S, R 100 W
7	MAP NAME (2-DEG.)	Grand Junction
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	1978(?)
11	OVERBURDEN THICKNESS	500'
12	NAME OF COAL BED	Cameo
13	GEOLOGIC UNIT	Lower Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	7' - 11'
16	DIP (DEGREES)	4 1/2°
17	HEAT VALUE (BTU/lb)*	12,500
18	SULFUR (%)*	0.6
19	MOISTURE (%)*	8 - 9
20	ASH (%)*	8 - 9
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	McGinley Coal and Energy Co. (and) Village Land Co.
24	ADDRESS	5670 Evans
25	CITY, STATE, ZIP	Denver, CO 80222
26	TELEPHONE	(303) 757-6441
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	Pavlakas & Co. (owner)
29	CORP. ADDRESS	115 N. 3rd St., Grand Junction, CO 81501
30	LEASE INFORMATION	Private, 80 acs. Property includes old "Hidden Treasure" mine.
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 4,490; 1978 (projected)? - 25,000 - 100,000; 250,000 capacity
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Utilities(?), Local (?)
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	15 miles to DRGW railhead
37	RECLAMATION PERMIT	
38	STATUS OF MINE	No prod., no devel.
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

PROPOSED

1	COUNTY	MOFFAT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	EAGLE #6
5	AREA	9 mi. SW of Craig
6	LOCATION	Sec. 6, T 5 N, R 91 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner, shuttle cars, continuous haulage
10	STARTUP DATE	1978
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	"E"
13	GEOLOGIC UNIT	Upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	10' avg.
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Empire Energy Corp.
24	ADDRESS	Steel, also looking at Japan, Taiwan, and Korean markets.
25	CITY, STATE, ZIP	Craig, CO 81625
26	TELEPHONE	(303) 824-9467
27	COMPANY CONTACTS	Peter Epp, operations; Steve Self, Div. Chief Eng.; Steven Cherry, marketing (388-4401)
28	CORP. AFFILIATION	Denver office
29	CORP. ADDRESS	3333 Quebec St., Suite 3000, Denver, CO 80207 (303) 388-4401
30	LEASE INFORMATION	Continuation south from Wise Hill #5. See Wise Hill #5.
31	PRODUCTION (S. TONS)	
32	EST. LIFE/RESERVES	30 years with expansion to south
33	SALES DATA	
34	NUMBER OF EMPLOYEES	1980 (projected) 75
35	UNION AFFILIATION	
36	TRANSPORTATION	DRGW
37	RECLAMATION PERMIT	In process
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

PROPOSED

1	COUNTY	MOFFAT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	EAGLE #7
5	AREA	8 mi. SW of Craig
6	LOCATION	Sec. 7, T 5 N, R 91 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Underground
9	MINING METHOD	Continuous miner, shuttle cars, continuous haulage
10	STARTUP DATE	1978 or 1979
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	"C"
13	GEOLOGIC UNIT	Upper Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	12' avg.
16	DIP (DEGREES)	N 30° E
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bitum.-Subbitum.
22	USE OF COAL	Steam
23	MINE OPERATOR	Empire Energy Corp.
24	ADDRESS	(projected) 100,000 - 120,000; 1979 (projected) 300,000; 1980 (projected capacity) 1 - 1.5 million
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	(Continuation south from Eagle #6) 6 State, 3,251 acs.; 5 Federal, 529 acs.; private, 5,364 acs.
31	PRODUCTION (S. TONS)	
32	EST. LIFE/RESERVES	30 yrs. with expansion to the south.
33	SALES DATA	
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	DRGW
37	RECLAMATION PERMIT	In process
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	2-26-78

1	COUNTY	RIO BLANCO
2	COAL REGION	Uinta
3	FIELD NAME	Lower White River
4	MINE NAME	GORDON
5	AREA	
6	LOCATION	Sec. (var.), T 2, 3 N, R 101, 102 W
7	MAP NAME (2-DEG.)	Vernal
8	TYPE OF MINE	2 undergrnd; 1 surf.
9	MINING METHOD	
10	STARTUP DATE	1983-1985
11	OVERBURDEN THICKNESS	Est. 700' max.
12	NAME OF COAL BED	"C" and "D"
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	6' - 30'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	11,000 (moist.-free)
18	SULFUR (%)*	0.4
19	MOISTURE (%)*	13
20	ASH (%)*	9
21	RANK OF COAL	Subbituminous
22	USE OF COAL	Steam
23	MINE OPERATOR	Moon Lake Electric Co.
24	ADDRESS	
25	CITY, STATE, ZIP	
26	TELEPHONE	(801) 789-0424
27	COMPANY CONTACTS	Jim Lee, Chief Eng.
28	CORP. AFFILIATION	Moon Lake Electric Co.
29	CORP. ADDRESS	Box 278, Roosevelt, Utah 84066, (801) 722-2448 Merrill Millett, gen. mgr.)
30	LEASE INFORMATION	Unknown
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; (projected) 164,000 without oil shale; 1,990,000 with oil shale development.
32	EST. LIFE/RESERVES	20 - 35 yrs.
33	SALES DATA	Oil shale developments and/or Utah power plants.
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	Truck, rail, pipeline
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	11/77

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	DAWSON UNIT
5	AREA	2 mi. E of Hayden
6	LOCATION	Sec. 9, T 6 N, R 87 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	
22	USE OF COAL	
23	MINE OPERATOR	Coal Fuels - Wilde, Inc.
24	ADDRESS	Los Lagos office
25	CITY, STATE, ZIP	Rollinsville, CO 80474
26	TELEPHONE	(303) 258-3354
27	COMPANY CONTACTS	Alfred Hoyl, managing partner
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	
31	PRODUCTION (S. TONS)	Construction may begin May 1979; operations may begin May 1980; Cumulative to 1/1/78: 0; 1979 (projected) 200,000 tpy; 1981 (projected) 400,000 tpy; 1983 (projected) 1 million tpy.
32	EST. LIFE/RESERVES	
33	SALES DATA	
34	NUMBER OF EMPLOYEES	1980 (projected) 30 (50% local)
35	UNION AFFILIATION	
36	TRANSPORTATION	Railroad
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed, explor.
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	DENTON STRIP
5	AREA	2 mi. SW of Milner
6	LOCATION	Sec. 20, 21, T 6 N, R 86 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	
10	STARTUP DATE	
11	OVERBURDEN THICKNESS	60'
12	NAME OF COAL BED	Wadge and Wolf Creek
13	GEOLOGIC UNIT	Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	9.5'
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	Bituminous
22	USE OF COAL	
23	MINE OPERATOR	Milner Coal Corp.
24	ADDRESS	Unknown
25	CITY, STATE, ZIP	
26	TELEPHONE	
27	COMPANY CONTACTS	Unknown - Cesar Fulton, former operator
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	1 State, 280 acs.
31	PRODUCTION (S. TONS)	1975 - 28,487; 1976 - 8,257 - closed; Cumulative to 1/1/78: 36,744
32	EST. LIFE/RESERVES	1 yr (?)
33	SALES DATA	
34	NUMBER OF EMPLOYEES	1975: 10
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	1-78

PROPOSED

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	SENECA 2 W STRIP
5	AREA	7 mi. SE of Hayden
6	LOCATION	Sec. (var.), T 6 N, R 87 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Surface
9	MINING METHOD	Dragline
10	STARTUP DATE	
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	
22	USE OF COAL	
23	MINE OPERATOR	Seneca Coal Ltd.
24	ADDRESS	Drawer D
25	CITY, STATE, ZIP	Hayden, CO 81639
26	TELEPHONE	(303) 276-3559
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	Peabody Coal Co.
29	CORP. ADDRESS	12075 E. 45th Ave., Denver, CO 80239 (303) 371-7990
30	LEASE INFORMATION	Federal, leases not in hand. (May have to mine it before Seneca 2 is depleted due to Federal regulations)
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0; 1980 (projected) 900,000; 1981 - 1984 (projected) 810,000; 1985 (projected) 760,000; 1986 - 1995 (projected) 680,00
32	EST. LIFE/RESERVES	15 years
33	SALES DATA	Hayden power plant
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

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1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	SUN
5	AREA	5 mi. SE of Pagoda
6	LOCATION	Sec. 12, T 4 N, R 89 W
7	MAP NAME (2-DEG.)	Craig
8	TYPE OF MINE	Underground
9	MINING METHOD	
10	STARTUP DATE	1980
11	OVERBURDEN THICKNESS	40' - 120'
12	NAME OF COAL BED	Rice or Pinnacle #3
13	GEOLOGIC UNIT	Iles Formation, Mesaverde Group
14	GEOLOGIC AGE	Upper Cretaceous
15	COAL BED THICKNESS	5' - 10' (5 seams)
16	DIP (DEGREES)	9° NE
17	HEAT VALUE (BTU/lb)*	10,900 - 11,600
18	SULFUR (%)*	0.4 - 0.5
19	MOISTURE (%)*	11.2 - 11.5
20	ASH (%)*	4.2 - 7.5
21	RANK OF COAL	Bitum/Subbitum, hv-C
22	USE OF COAL	Steam
23	MINE OPERATOR	Ruby Construction Co., Inc.
24	ADDRESS	12025 E. 45th Ave.
25	CITY, STATE, ZIP	Denver, CO 80239
26	TELEPHONE	(303) 371-4290
27	COMPANY CONTACTS	Charles F. Brannen
28	CORP. AFFILIATION	Ruby Construction Co., Inc.
29	CORP. ADDRESS	P.O. Box 16160, Louisville, KY 40216
30	LEASE INFORMATION	Federal 146 acs. Ruby Const. planning to lease coal to W.R. Grace pending EIS approval.
31	PRODUCTION (S. TONS)	Closed March 1969 by Sun Coal Co.; Cumulative to 1/1/78: 11,312; (planned capacity) 250,000 - 300,000
32	EST. LIFE/RESERVES	4 - 5 yrs./1.152 million tons
33	SALES DATA	Uncertain; probably in-state.
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	(600 acs.)
38	STATUS OF MINE	Proposed
39	METHANE EMISSIONS	
40	DATE REVISED	12/77

1	COUNTY	ROUTT
2	COAL REGION	Green River
3	FIELD NAME	Yampa
4	MINE NAME	YOAST STRIP
5	AREA	7 mi. SE of Hayden
6	LOCATION	Sec. (var.), T 6 N, R 87W
7	MAP NAME (2-DEG.)	
8	TYPE OF MINE	Surface
9	MINING METHOD	
10	STARTUP DATE	1991
11	OVERBURDEN THICKNESS	
12	NAME OF COAL BED	
13	GEOLOGIC UNIT	
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	
18	SULFUR (%)*	
19	MOISTURE (%)*	
20	ASH (%)*	
21	RANK OF COAL	
22	USE OF COAL	
23	MINE OPERATOR	Seneca Coal Ltd.
24	ADDRESS	
25	CITY, STATE, ZIP	Hayden, CO 81639
26	TELEPHONE	(303) 276-3559
27	COMPANY CONTACTS	J.F. Lake, Pres. Rocky Mtn. Div.
28	CORP. AFFILIATION	Peabody Coal Co.
29	CORP. ADDRESS	12075 E. 45th Ave., Denver, CO 80239 (303) 371-7990
30	LEASE INFORMATION	Federal
31	PRODUCTION (S. TONS)	Cumulative to 1/1/78: 0
32	EST. LIFE/RESERVES	8 yrs.
33	SALES DATA	Hayden power plant
34	NUMBER OF EMPLOYEES	
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	Proposed - no plans
39	METHANE EMISSIONS	
40	DATE REVISED	2-24-78

1	COUNTY	SAN MIGUEL
2	COAL REGION	San Juan River
3	FIELD NAME	Nucla-Naturita
4	MINE NAME	ELDER
5	AREA	2 mi. NW of Norwood
6	LOCATION	Sec. 20, T 45 N, R 13 W
7	MAP NAME (2-DEG.)	Moab
8	TYPE OF MINE	Underground
9	MINING METHOD	Conventional
10	STARTUP DATE	1977
11	OVERBURDEN THICKNESS	54' max.
12	NAME OF COAL BED	Unknown
13	GEOLOGIC UNIT	
14	GEOLOGIC AGE	
15	COAL BED THICKNESS	32" - 40"
16	DIP (DEGREES)	
17	HEAT VALUE (BTU/lb)*	13,806 - 14,400
18	SULFUR (%)*	0.7
19	MOISTURE (%)*	3
20	ASH (%)*	7 - 8
21	RANK OF COAL	Bituminous
22	USE OF COAL	Metallurgical
23	MINE OPERATOR	Holland & Sons Mining Co.
24	ADDRESS	
25	CITY, STATE, ZIP	Naturita, CO 81442
26	TELEPHONE	(303) 865-2673
27	COMPANY CONTACTS	
28	CORP. AFFILIATION	
29	CORP. ADDRESS	
30	LEASE INFORMATION	Private, 12.5 acs.
31	PRODUCTION (S. TONS)	1977 0; Cumulative to 1/1/78: 2,650; 1978 (projected) 8,000 - 10,000, if production equipment can be purchased.
32	EST. LIFE/RESERVES	Unknown
33	SALES DATA	Local sales
34	NUMBER OF EMPLOYEES	1977 - 2; 1978 (projected) 3 to 5
35	UNION AFFILIATION	
36	TRANSPORTATION	
37	RECLAMATION PERMIT	
38	STATUS OF MINE	No production
39	METHANE EMISSIONS	
40	DATE REVISED	2-21-78

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