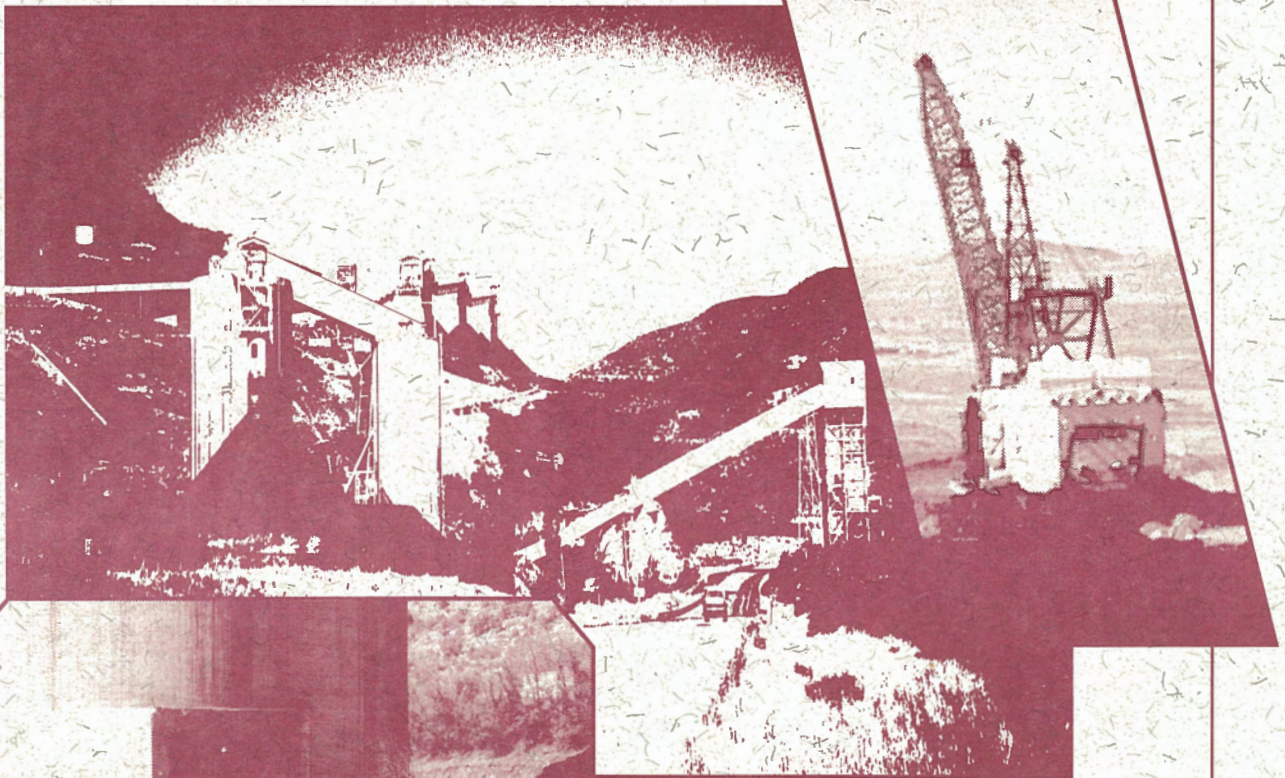


Resource Series 32

Directory and Statistics of Colorado Coal Mines with Distribution and Electric Generation Map, 1995-96

Jonathan M. Zook and Carol M. Tremain



**Colorado Geological Survey
Department of Natural Resources
Denver, Colorado/1997**

Resource Series 32

Directory and Statistics of Colorado Coal Mines with Distribution and Electric Generation Map, 1995–96

By
Jonathan M. Zook and Carol M. Tremain

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Colorado Geological Survey
Department of Natural Resources
Denver, Colorado
1997

PREFACE

This directory is an update and revision of Resource Series 29 published in 1990. The purpose of the publication is to provide insight into the Colorado coal industry. The directory includes geologic, production and location data on coal mines that were operating in 1996 and two planned mines in the permitting stage. The map contains coal production, distribution, and electric generation information for 1995.

Data were compiled from previous Colorado Geological Survey publications and the following sources:

- Office of Surface Mining, U.S. Department of the Interior
- Division of Minerals & Geology, Colorado Department of Natural Resources
- State Board of Land Commissioners, Colorado Department of Natural Resources
- *1997 Keystone Coal Industry Manual*

- Colorado Public Utilities Commission
- Department of Energy/Energy Information Administration, U.S. Department of the Interior

Additional information was obtained by contacting individual coal mine and power plant operators via mail, telephone and fax. The accompanying map locates mines and lists them by county and coal mine name.

Production data is tabulated by the Colorado Division of Minerals and Geology. Permit areas are shown on the individual maps accompanying the text.

The information contained in this report is the best available at the time of writing, June 1, 1997. Accuracy and completeness cannot be guaranteed. Neither the Colorado Geological Survey nor the authors assume responsibility for incidental or consequential damages arising from use of information from this report.

CONTENTS

Map No.	Mine	Operator	County	Coal Region	Page No.
1	Bowie No. 1	Bowie Resources, Ltd.	Delta	Uinta	2
2	Bowie No. 2	Bowie Resources, Ltd.	Delta	Uinta	5
3	Southfield	Energy Fuels Coal, Inc.	Fremont	Canon City	8
4	Bear No. 3	Bear Coal Co.	Gunnison	Uinta	11
5	Sanborn Creek	Oxbow Carbon & Minerals, Inc.	Gunnison	Uinta	14
6	West Elk	Mountain Coal Co.	Gunnison	Uinta	17
7	King Coal	National King Coal, LLC	La Plata	San Juan River	20
8	Lorencito	Lorencito Coal Co., LLC	Las Animas	Raton Mesa	23
9	Roadside	Powderhorn Coal Co.	Mesa	Uinta	26
10	Colowyo	Colowyo Coal Co.	Moffat	Uinta	29
11	Eagle No. 5 & 9	Cyprus Empire Corp.	Moffat	Green River	32
12	Trapper	Trapper Mining, Inc.	Moffat	Green River	35
13	New Horizon	Western Fuels-Colorado, LLC	Montrose	San Juan River	38
14	Deserado	Western Fuels-Utah, Inc.	Rio Blanco	Uinta	41
15	Seneca II	Seneca Coal Co.	Routt	Green River	44
16	Seneca II-W	Seneca Coal Co.	Routt	Green River	47
17	Yoast	Seneca Coal Co.	Routt	Green River	50
18	Twentymile	Twentymile Coal Co.	Routt	Green River	53

PLATE

1	Coal production and distribution and electric generation map of Colorado	In Pocket
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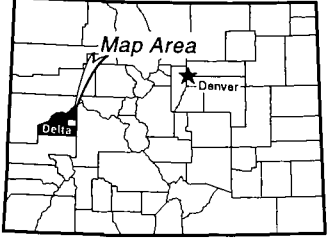
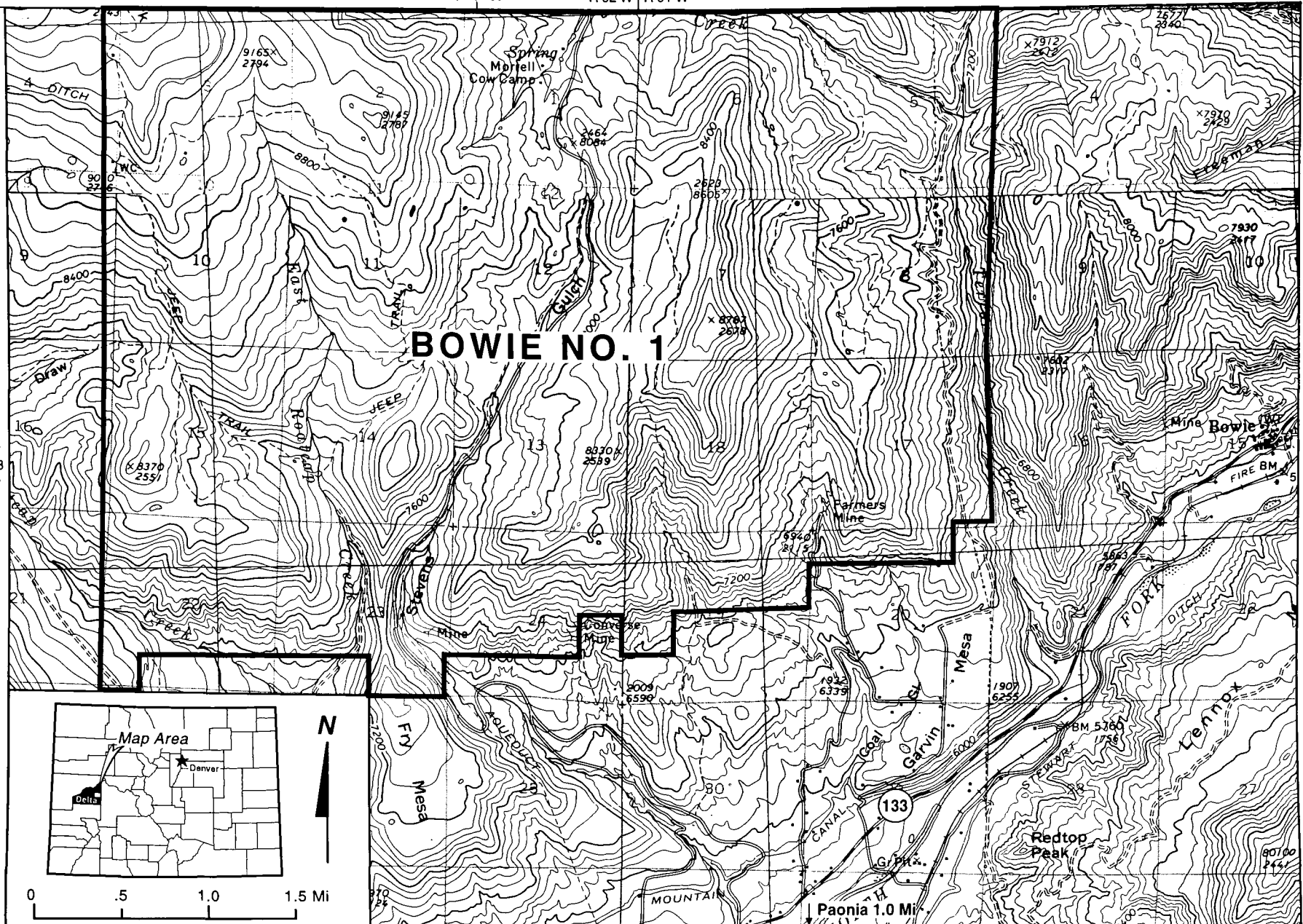
38°
56'
30"

107°37'30"

R 92 W | R 91 W

2

T 13 S



BOWIE NO. 1 MINE

Map No. 1 M.L.R.D. Permit No. C-81-038
Previous Mine Names Orchard Valley (Colorado Westmoreland, Inc.)

LOCATION INFORMATION

County Delta
Permit Location (Sec., T., R.,) Sec. 5-8, 17-20, , T. 13 S., R. 91 W. and Sec. 1,2,3,10-15, 22-24, T. 13 S.,
R. 92 W.
Coal Region Uinta Field Somerset
Topographic Quadrangle Gray Reservoir, Bowie

COMPANY INFORMATION

Mine Operator Bowie Resources, Ltd.
Address P. O. Box 1488, Paonia, CO 81428-1488
Contacts Bill Bear, Jr. Telephone (970) 527-4135
Parent Company Bowie Resources, Ltd.
Address 1500 North Big Run Road, Ashland, KY 41102
Contacts Al Perry, President, Bowie Coal Sales Telephone (812) 867-7727

GENERAL INFORMATION

Mine Type Underground Mining Method Continuous miners
Mine Status Producing Start-Up Date November 1976
No. of Employees 53 Union Affiliation Non-union
No. of Acres in Permit 1,240
Surface: Federal X State _____ Private X
Mineral: Federal X State _____ Private X

GEOLOGIC INFORMATION

Geologic Unit Mesaverde Group Geologic Age Cretaceous
Coal Zone(s) or Bed(s) D

Coal Thickness(es) 10-20 ft
Cleat Orientation and Spacing _____
Dip of Bedding 2-5° NNE Strike of Bedding _____
Overburden Thickness(es) 450-1800 ft

Interburden Thickness _____

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	D			
Rank				
Moisture (%)	12.50			
Ash (%)	7.50			
Fixed Carbon (%)	47.0			
Volatile Matter (%)	34.6			
Sulfur (%)	0.45			
Heating Value (Btu/lb.)	11,400			
Free Swelling Index				
Hardgrove Grindability	45			
Ash-Softening Temperature (°F)	2,500			
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production	<u>522,384 tons</u>	1996 Production	<u>605,657 tons</u>
Cumulative Production Through 1996	<u>15,301,655 tons</u>		
Projected Production (tpy) 1997			
Remaining Reserves/Life of Mine	<u>80 million tons/2010</u>		
Shifts Per Day	<u>3—8 hrs</u>		
Production Per Shift			
Equipment	<u>Continuous miners, shuttle cars, roof bolters</u>		
Haulage	<u>Conveyors</u>		
Preparation Plant	<u>Crusher breaker</u>	Tipple	<u>Converse</u>

SALES DATA

Percent In-State	<u>50</u>	Destination	<u>Industrial</u>	Use	
Percent Out-of-State	<u>50</u>	Destination	<u>Utility</u>	Use	
Percent Export		Destination		Use	
Transportation Mode/Mixed Modes	<u>Rail</u>				

ADDITIONAL INFORMATION AND COMMENTS

Geologic Reference Map: Dunrud, Richard C., 1989, Geologic Map and Coal Stratigraphic Framework of the Paonia Area, Delta and Gunnison Counties, Colorado: U.S. Geological Survey Map C-115, scale 1:50,000

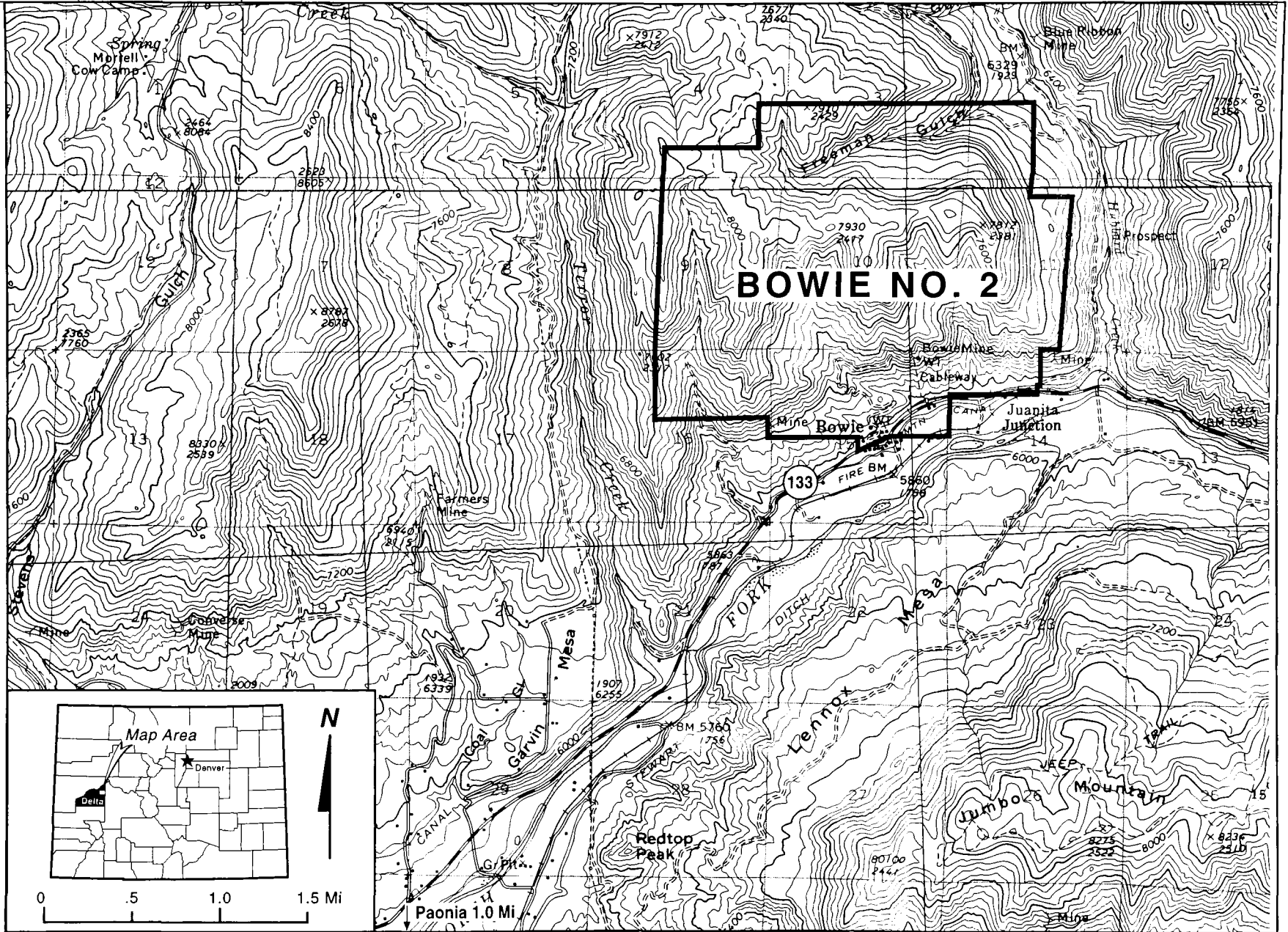
38°
56'
30"

107°37'30"

R 92 W | R 91 W

5

T
13
S



BOWIE NO. 2 MINE

Map No. 2 M.L.R.D. Permit No. Applied for
Previous Mine Names Orchard Valley Mine

LOCATION INFORMATION

County Delta
Permit Location (Sec., T., R.,) Sec. 2-4,9-11,14-16, T. 13 S., R. 91 W.

Coal Region Uinta Field Somerset
Topographic Quadrangle Bowie

COMPANY INFORMATION

Mine Operator Bowie Resources, Ltd.
Address P.O. Box 1488, Paonia, CO 81428-1488
Contacts Bill Bear, Jr. Telephone (970) 527-4135
Parent Company Bowie Resources, Ltd.
Address 1500 North Big Run Road, Ashland, KY 41102
Contacts Al Perry, President—Bowie Coal Sales Telephone (812) 867-7727

GENERAL INFORMATION

Mine Type Underground Mining Method Continuous miners
Mine Status New operation Start-Up Date Anticipated 1997
No. of Employees _____ Union Affiliation Non-union
No. of Acres in Permit 1496
Surface: Federal X State _____ Private X
Mineral: Federal X State _____ Private X

GEOLOGIC INFORMATION

Geologic Unit Mesaverde Group Geologic Age Cretaceous
Coal Zone(s) or Bed(s) B & D

Coal Thickness(es) 10-20 ft
Cleat Orientation and Spacing _____
Dip of Bedding 2-5° NNE Strike of Bedding _____
Overburden Thickness(es) 450-1800 ft
Interburden Thickness _____

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>D</i>	<i>B</i>		
Rank				
Moisture (%)	<i>12.5</i>	<i>7.0</i>		
Ash (%)	<i>7.5</i>	<i>7.5</i>		
Fixed Carbon (%)	<i>47.0</i>	<i>49.0</i>		
Volatile Matter (%)	<i>34.6</i>	<i>36.5</i>		
Sulfur (%)	<i>0.45</i>	<i>0.50</i>		
Heating Value (Btu/lb.)	<i>11,400</i>	<i>12,300</i>		
Free Swelling Index				
Hardgrove Grindability	<i>45</i>	<i>58</i>		
Ash-Softening Temperature (°F)	<i>2,500</i>	<i>2,480</i>		
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production *New operation opening in 1997*

Cumulative Production Through 1996 _____

Projected Production (tpy) 1997 _____

Remaining Reserves/Life of Mine *83 million tons, 2010*

Shifts Per Day _____

Production Per Shift _____

Equipment *Continuous miners, shuttle cars, roof bolters*

Haulage *Conveyers*

Preparation Plant *Crusher breaker* Tipple *Converse*

SALES DATA

Percent In-State _____ Destination _____ Use _____

Percent Out-of-State _____ Destination _____ Use _____

Percent Export _____ Destination _____ Use _____

Transportation Mode/Mixed Modes *Truck/rail*

ADDITIONAL INFORMATION AND COMMENTS

 Geologic Reference Map: See Bowie No. 1

R 70 W R 69 W

105°07'30"

Florence 3.5 Mi

8

T
20
S

SOUTHFIELD

FIELD
AREA

Coal Creek Canyon Mine

Oil Wells

Oil Well

Double Dick Mines

Pine Gutch Mines

Monarch No 4 Mine

67

Creek

BM 5589

Oil Wells

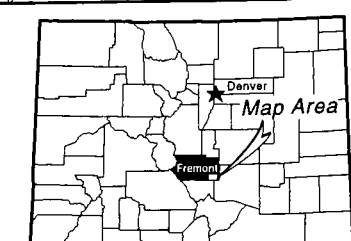
Oil Wells

Oil Wells

Oil Wells

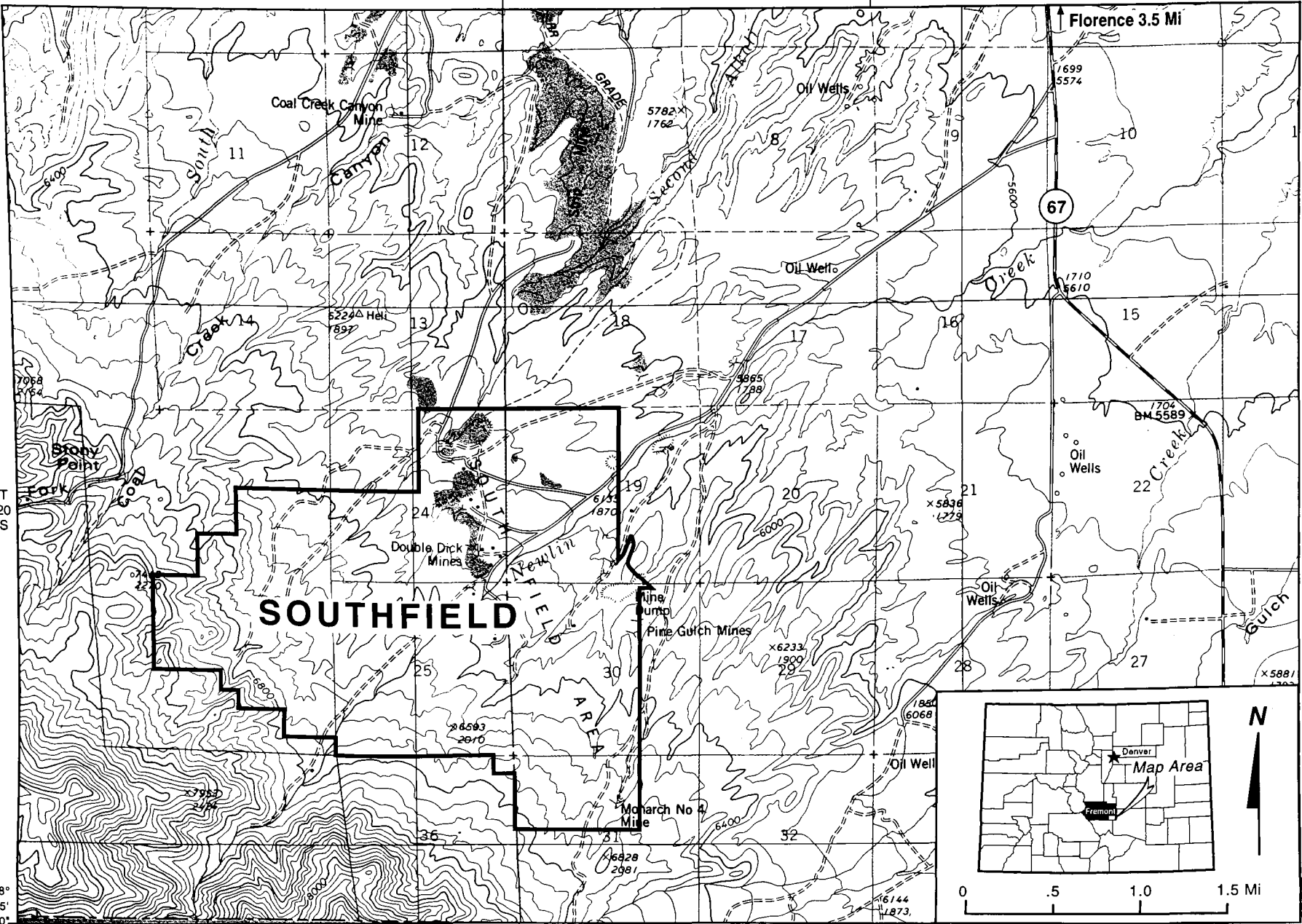
Oil Well

Guich



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38°
15'
30"



SOUTHFIELD MINE

Map No. 3 M.L.R.D. Permit No. C-81-014
Previous Mine Names Dorchester No. 1 (Dorchester Gas)

LOCATION INFORMATION

County Fremont
Permit Location (Sec., T., R.) Secs. 19,30,31, T. 20 S., R. 69 W. and Secs. 23-26,36 T. 20 S., R. 70 W.
Coal Region Canon City Field Canon City
Topographic Quadrangle Rockvale

COMPANY INFORMATION

Mine Operator Energy Fuels Coal, Inc.—Southfield Mine
Address P. O. Box 459, Florence, CO 81226
Contacts George Patterson Telephone (719) 784-6395
Parent Company Energy Fuels Coal, Inc.
Address 1200 17th St., Ste. 1000, Denver, Co 80202
Contacts Rich A. Munson Telephone (303) 893-6996

GENERAL INFORMATION

Mine Type Underground Mining Method Continuous miners
Mine Status Producing Start-Up Date March 1985
No. of Employees 40 Union Affiliation Non-union
No. of Acres in Permit 1,496
Surface: Federal _____ State _____ Private X
Mineral: Federal _____ State _____ Private X

GEOLOGIC INFORMATION

Geologic Unit Vermejo Formation Geologic Age Cretaceous
Coal Zone(s) or Bed(s) Dirty Jack O' Lantern, Red Arrow
Coal Thickness(es) Dirty Jack O' Lantern—1-6 ft, Red Arrow—3-7 ft
Cleat Orientation and Spacing In SESW Sec. 19, 20 S. 69 W. the face cleat strike is 285°
Dip of Bedding 6° Strike of Bedding N to N 40 E
Overburden Thickness(es) 0-1300 ft
Interburden Thickness Dirty Jack O' Lantern-Red Arrow: 29 ft

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>Dirty Jack</i>			
Rank	<i>Bituminous</i>			
Moisture (%)	10.0	11.0		
Ash (%)	10.0	9.0		
Fixed Carbon (%)	35.0	46.0		
Volatile Matter (%)	44.0	34.0		
Sulfur (%)	0.6	0.6		
Heating Value (Btu/lb.)	11,000	11,100		
Free Swelling Index	0.5			
Hardgrove Grindability	45			
Ash-Softening Temperature (°F)	2,650			
Methane Characteristics	<i>Minimal</i>			
Reflectance Data				

COAL PRODUCTION

1995 Production	1995—302,233 tons	1996 Production	170,387 tons
Cumulative Production Through 1996	5,476,051 tons		
Projected Production (tpy) 1997	224,000		
Remaining Reserves/Life of Mine	10 years		
Shifts Per Day	2—8 hrs		
Production Per Shift			
Equipment	<i>Continuous miners</i>		
Haulage	<i>Electric shuttle cars</i>		
Preparation Plant	<i>Wash</i>	Tipple	

SALES DATA

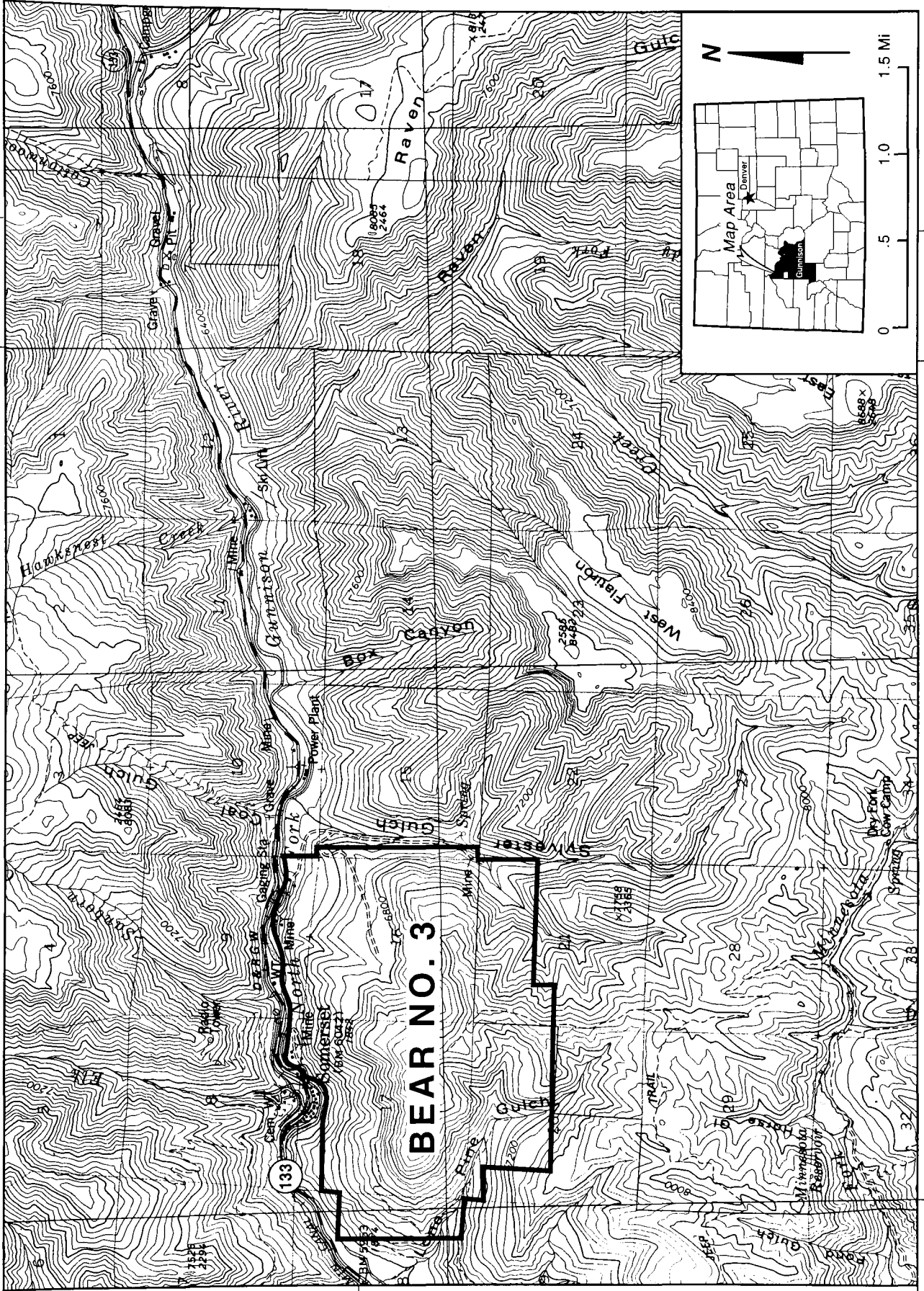
Percent In-State	89	Destination	<i>Canon City, Florence</i>	Use	<i>Steam</i>
Percent Out-of-State	11	Destination	<i>New Mexico</i>	Use	<i>Steam</i>
Percent Export		Destination		Use	
Transportation Mode/Mixed Modes	<i>Truck</i>				

ADDITIONAL INFORMATION AND COMMENTS

Geologic Map Reference: Scott, G.R., 1974, Reconnaissance Geologic Map of the Rockvale Quadrangle, Custer and Fremont Counties, Colorado, U.S. Geological Survey Map MF-562, scale 1:24,000

R 90 W | R 89 W

107°22'30"



Paonia 8.5 Mi

T 13 S

38° 52' 30"

BEAR MINE NO. 3

Map No. 4 M.L.R.D. Permit No. C-81-033
Previous Mine Names Bear No. 1 and Bear No. 2

LOCATION INFORMATION

County Gunnison
Permit Location (Sec., T., R.,) Sec. 8,9,16-21, T. 13 S., R. 90 W.

Coal Region Uinta Field Somerset
Topographic Quadrangle Somerset

COMPANY INFORMATION

Mine Operator Bear Coal Co., Inc.
Address P.O. Box 518, Somerset, CO 814334
Contacts Daniel E. Bear or David J. Hurr Telephone (970) 929-5775
Parent Company _____
Address _____
Contacts _____ Telephone _____

GENERAL INFORMATION

Mine Type Underground Mining Method Continuous miners
Mine Status Producing Start-Up Date 1934
No. of Employees 54 Union Affiliation UMWA No. 6417, Dist. 22
No. of Acres in Permit 1652
Surface: Federal _____ State _____ Private X
Mineral: Federal X State _____ Private _____

GEOLOGIC INFORMATION

Geologic Unit Mesaverde Group Geologic Age Upper Cretaceous
Coal Zone(s) or Bed(s) B

Coal Thickness(es) B: 8-10 ft
Cleat Orientation and Spacing _____
Dip of Bedding 3.5-6.25° NE Strike of Bedding _____
Overburden Thickness(es) 100-1400 ft
Interburden Thickness _____

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	B			
Rank				
Moisture (%)	8.5			
Ash (%)	8.0			
Fixed Carbon (%)	52.0			
Volatile Matter (%)	41.0			
Sulfur (%)	0.5			
Heating Value (Btu/lb.)	12,200			
Free Swelling Index				
Hardgrove Grindability	46			
Ash-Softening Temperature (°F)	2,550			
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production	468,002 tons	1996 Production	335,763 tons
Cumulative Production Through 1996	9,107,275 tons		
Projected Production (tpy) 1997	None—closed 11/11/96		
Remaining Reserves/Life of Mine			
Shifts Per Day	3—8 hrs		
Production Per Shift	1000 tons		
Equipment	Continuous miner, roof bolters, shuttle cars		
Haulage	Belt		
Preparation Plant	N/A	Tipple	N/A

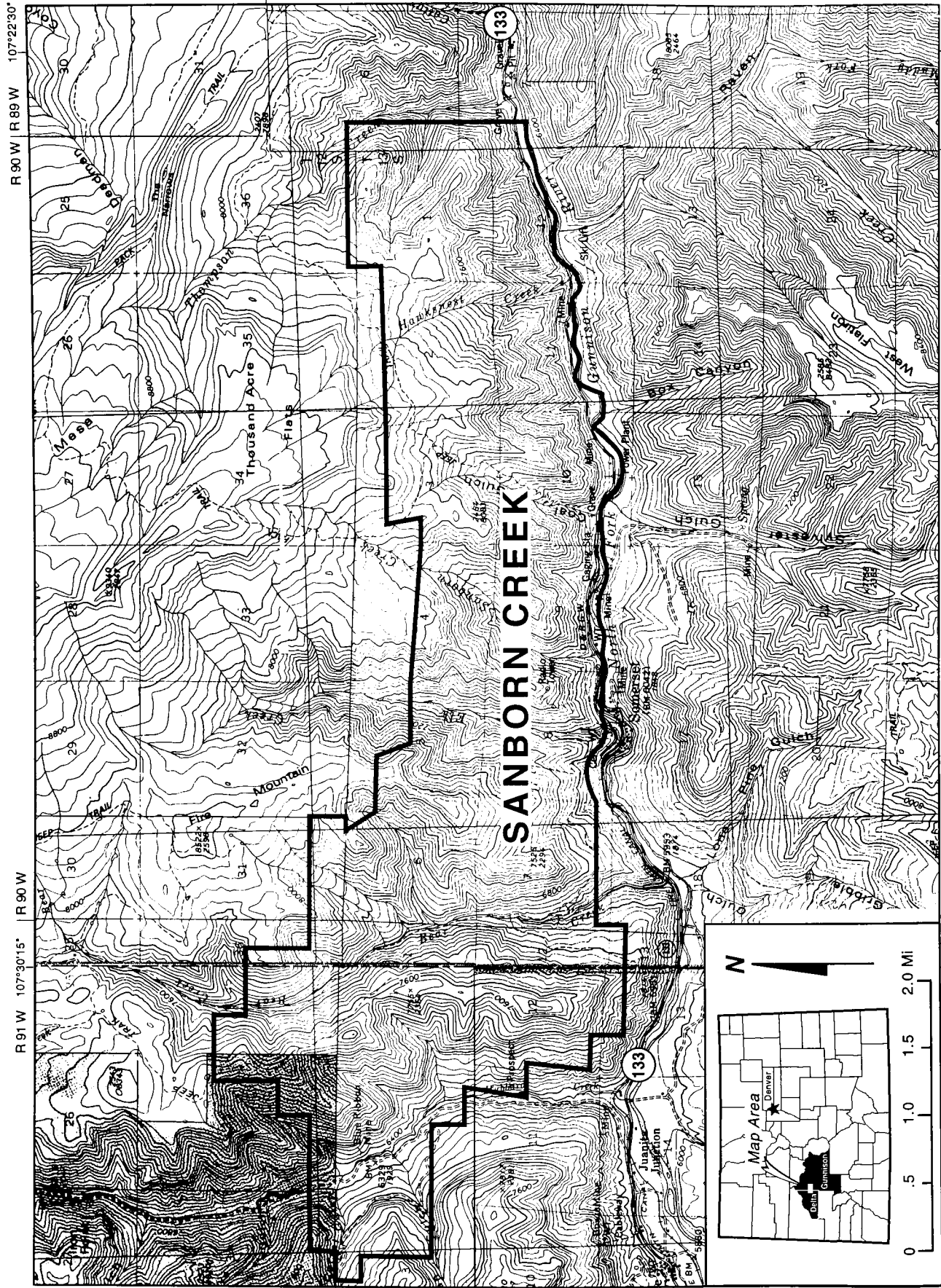
SALES DATA

Percent In-State	100	Destination	Colorado	Use	Steam
Percent Out-of-State		Destination		Use	
Percent Export		Destination		Use	
Transportation Mode/Mixed Modes	Rail—D&RGW (Southern Pacific)				

ADDITIONAL INFORMATION AND COMMENTS

All coal is sold through an exclusive sales agreement with Pacific Basin Resources for resale

Geologic Map Reference: See Bowie No. 1



SANBORN CREEK MINE

Map No. 5 M.L.R.D. Permit No. C-81-022

Previous Mine Names _____

LOCATION INFORMATION

County Gunnison

Permit Location (Sec., T., R.) Sec. 6,7, T. 13 S, R. 89 W.; Sec. 31, T. 12 S. R. 90 W.; Sec. 34-36, T. 12 S., R. 91 W., Sec. 1-12, T 13 S., R. 90 W.; Sec 1-3, 11-13, T. 13 S., R. 91 W.

Coal Region Uinta Field Somerset

Topographic Quadrangle Somerset, Bowie

COMPANY INFORMATION

Mine Operator Oxbow Carbon and Minerals, Inc.

Address P.O. Box 535, Somerset, CO 81434

Contacts Walter Wright Telephone (970) 929-5122

Parent Company Oxbow Carbon and Minerals

Address 7901 S. Park Plaza, Suite 202, Littleton, CO 80120

Contacts Paul Fritzler Telephone (303) 795-0413

GENERAL INFORMATION

Mine Type Underground Mining Method Continuous

Mine Status Producing Start-Up Date 1991

No. of Employees 107 Union Affiliation N/A

No. of Acres in Permit 9,047

Surface: Federal 5,494 State _____ Private 3,553

Mineral: Federal 5,777 State _____ Private 3,270

GEOLOGIC INFORMATION

Geologic Unit Williams Fork Geologic Age Upper Cretaceous

Coal Zone(s) or Bed(s) B, C

Coal Thickness(es) 18 ft

Cleat Orientation and Spacing _____

Dip of Bedding 5% Strike of Bedding S 27° E

Overburden Thickness(es) 500-2,500 ft

Interburden Thickness 40-60 ft

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	B			
Rank				
Moisture (%)	6.25			
Ash (%)	8.59			
Fixed Carbon (%)	47.25			
Volatile Matter (%)	38			
Sulfur (%)	0.55			
Heating Value (Btu/lb.)	12,375			
Free Swelling Index	2.5			
Hardgrove Grindability	48			
Ash-Softening Temperature (°F)	2,470			
Methane Characteristics				
Reflectance Data	0.74			

COAL PRODUCTION

1995 Production 1,057,996 tons 1996 Production 1,157,121 tons
 Cumulative Production Through 1996 4,587,374 tons
 Projected Production (tpy) 1997 _____
 Remaining Reserves/Life of Mine 12 million tons
 Shifts Per Day 3—8 hrs
 Production Per Shift 4,400 tons per day
 Equipment Continuous miners
 Haulage Belt
 Preparation Plant _____ Tipple _____

SALES DATA

Percent In-State _____ Destination _____ Use _____
 Percent Out-of-State 100 Destination Various Use Stm & metallurg.
 Percent Export _____ Destination _____ Use _____
 Transportaton Mode/Mixed Modes Rail—Southern Pacific

ADDITIONAL INFORMATION AND COMMENTS

Geologic Map Reference: See Bowie No. 1

WEST ELK MINE

Map No. 6 M.L.R.D. Permit No. C-80-007

Previous Mine Names Mt. Gunnison

LOCATION INFORMATION

County Gunnison

Permit Location (Sec., T., R.) Sec. 9,10,15,16,18-30,34-36, T. 13 S., R. 90 W. and Sec. 23-26, T. 13 S., R. 91 W.

Coal Region Uinta Field Somerset

Topographic Quadrangle Somerset, Minnesota Pass, Bowie

COMPANY INFORMATION

Mine Operator Mountain Coal Company, Inc.

Address P. O. Box 591, Somerset, CO 81434

Contacts Gene Di Claudio/ Dan Meadors Telephone (970) 929-5015

Parent Company Arco Coal Co.

Address 555 Seventeenth St., Denver, CO 80202

Contacts Terry O'Connor Telephone (303) 293-4000

GENERAL INFORMATION

Mine Type Underground Mining Method Continuous miners, longwall

Mine Status Producing Start-Up Date March 29, 1980

No. of Employees 275 Union Affiliation None

No. of Acres in Permit 14,590

Surface: Federal X State _____ Private X

Mineral: Federal X State _____ Private X

GEOLOGIC INFORMATION

Geologic Unit Mesaverde Group Geologic Age Cretaceous

Coal Zone(s) or Bed(s) B Seam (mined 1994-present), E Seam (unmined), F seam (mined 1982-1991)

Coal Thickness(es) B: 14 ft

Cleat Orientation and Spacing N 65 E-N 70 E

Dip of Bedding 3-5° SW-NE Strike of Bedding _____

Overburden Thickness(es) B: 0-2300 ft, avg. 1200 ft; E: 0-1700 ft, avg. 800 ft; F: 0-1500 ft, avg. 700 ft

Interburden Thickness B-E: 170-300 ft; E-F: 60-190 ft; avg. 120-130 ft

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>E</i>	<i>B (as shipped)</i>		
Rank	<i>Sub B</i>	<i>Sub B</i>		
Moisture (%)	<i>11.0</i>	<i>9.1</i>		
Ash (%)	<i>6.5</i>	<i>9.4</i>		
Fixed Carbon (%)		<i>46.5</i>		
Volatile Matter (%)		<i>35.0</i>		
Sulfur (%)	<i>0.4</i>	<i>0.46</i>		
Heating Value (Btu/lb.)	<i>11,600</i>	<i>11,700</i>		
Free Swelling Index				
Hardgrove Grindability		<i>41-49</i>		
Ash-Softening Temperature (°F)		<i>2,500</i>		
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production	<i>5,318,650 tons</i>	1996 Production	<i>5,948,912 tons</i>
Cumulative Production Through 1996	<i>24,858,495 tons</i>		
Projected Production (tpy) 1997	<i>6 million tons</i>		
Remaining Reserves/Life of Mine	<i>164.6 million tons/2020</i>		
Shifts Per Day	<i>3</i>		
Production Per Shift			
Equipment	<i>Longwall, continuous miners, diesel mobile equipment</i>		
Haulage	<i>Belt haulage out of mine</i>		
Preparation Plant	<i>Sizing only</i>	Tipple	<i>Silos & bath weigh</i>

SALES DATA

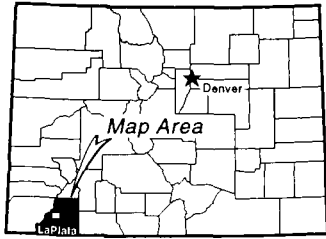
Percent In-State	<i>20</i>	Destination	<i>Colorado</i>	Use	<i>Steam</i>
Percent Out-of-State	<i>70</i>	Destination	<i>IL, IA, TN, TX, NV</i>	Use	<i>Steam</i>
Percent Export	<i>10</i>	Destination	<i>*</i>	Use	<i>Steam</i>
Transportation Mode/Mixed Modes	<i>Railroad—Union Pacific</i>				

ADDITIONAL INFORMATION AND COMMENTS

**Export destinations: Japan, Korea, Europe*

Geologic Reference Map: See Bowie No. 1

107°07'30" R 12 W | R 11 W



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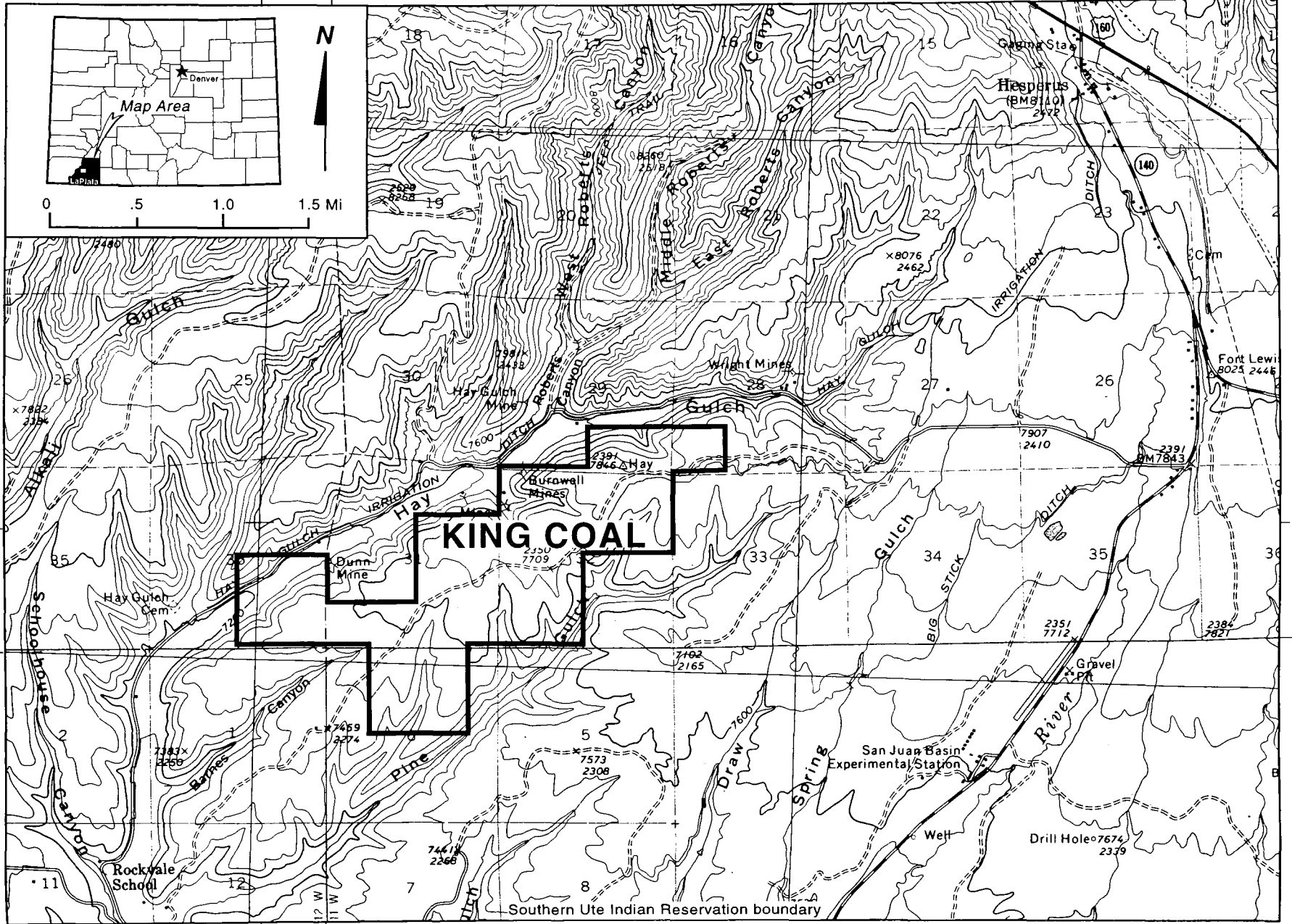
20

37° 15'

T 35 N

T 34 N

N



KING COAL

Southern Ute Indian Reservation boundary

KING COAL MINE

Map No. 7 M.L.R.D. Permit No. C-81-035

Previous Mine Names National King Coal, Inc.

LOCATION INFORMATION

County La Plata

Permit Location (Sec., T., R.,) Sec. 28,29,31,32, T. 35 N., R. 11 W.; Sec. 6, T. 34 N., R. 11 W.; Sec. 36, T. 35. N., R. 12 W.

Coal Region San Juan River Field Durango

Topographic Quadrangle Kline, Hesperus

COMPANY INFORMATION

Mine Operator Natinal King Coal, LLC

Address 4424 County Rd. 120, Hesperus, CO 81326

Contacts Tom Bird Telephone (970) 385-4606

Parent Company AMCI Colorado; N.S. Resources

Address P.O. Box 2905, Durango, CO 81301

Contacts Brad Gosche Telephone (970) 259-2416

GENERAL INFORMATION

Mine Type Underground Mining Method Continuous miner

Mine Status Producing Start-Up Date 1936

No. of Employees 56 Union Affiliation Non-union

No. of Acres in Permit 1,433

Surface: Federal _____ State X Private X

Mineral: Federal X State X Private X

GEOLOGIC INFORMATION

Geologic Unit Upper Menefee Geologic Age Cretaceous

Coal Zone(s) or Bed(s) Upper

Coal Thickness(es) 52—72 in.

Cleat Orientation and Spacing N51W, dip 90°face, Sec. 32, T. 35 N., R. 11 W.

Dip of Bedding 3°S-SW Strike of Bedding _____

Overburden Thickness(es) 0-300 ft

Interburden Thickness _____

COAL QUALITY**Sample 1****Sample 2****Sample 3****Sample 4**

Seam _____

Rank _____

Moisture (%) _____

Ash (%) _____

Fixed Carbon (%) _____

Volatile Matter (%) _____

Sulfur (%) _____

Heating Value (Btu/lb.) _____

Free Swelling Index _____

Hardgrove Grindability _____

Ash-Softening Temperature (°F) _____

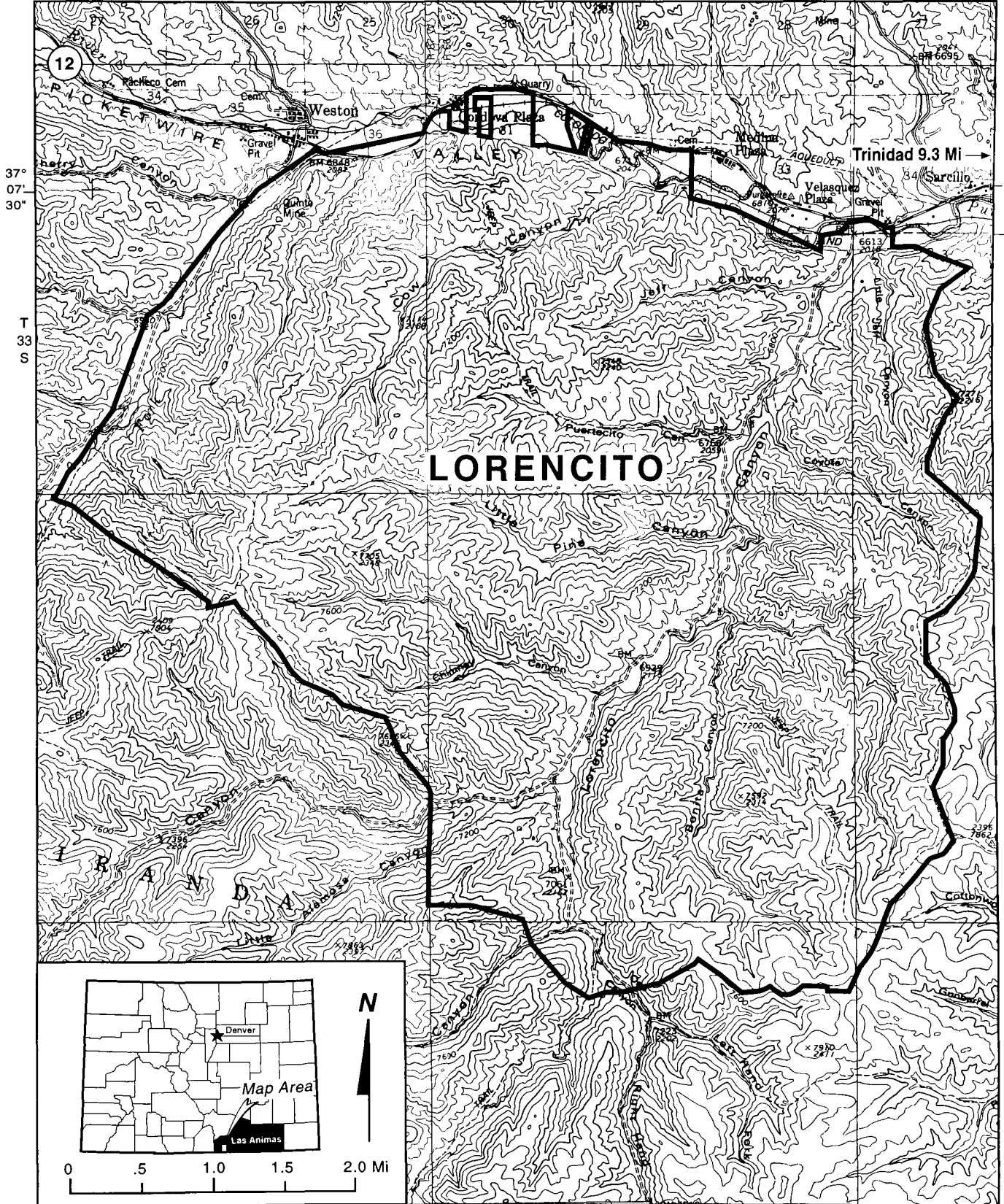
Methane Characteristics _____

Reflectance Data _____

COAL PRODUCTION1995 Production 208,642 tons 1996 Production 190,613 tonsCumulative Production Through 1996 2,808,963 tonsProjected Production (tpy) 1997 254,000Remaining Reserves/Life of Mine 3,200,000 tonsShifts Per Day 1—10 hrsProduction Per Shift 1,000 tons/dayEquipment Continuous miner sectionsHaulage Shuttle car to beltPreparation Plant Operational 1997, 4th quarter Tipple _____**SALES DATA**Percent In-State 10 Destination CO Use Domestic/Ind.Percent Out-of-State 79 Destination AZ,NM,UT Use IndustrialPercent Export 11 Destination Japan Use SteamTransportation Mode/Mixed Modes Truck**ADDITIONAL INFORMATION AND COMMENTS**Geologic Map Reference: Zapp, A.D., 1949, Geology and coal resources of the Durango area, La Plata and Montezuma Counties, Colorado: U.S. Geological Survey Oil Invest. Map No. 109, scale 1:126,720

104°52'30"

R 67 W | R 66 W



LORENCITO MINE

Map No. 8 M.L.R.D. Permit No. C-96-084
Previous Mine Names _____

LOCATION INFORMATION

County Las Animas
Permit Location (Sec., T., R.,) Lorencito Canyon area (no survey)

Coal Region Raton Mesa Field Trinidad
Topographic Quadrangle Weston

COMPANY INFORMATION

Mine Operator Lorencito Coal Company, LLC.
Address 1311 Bentwood Drive, Evansville, IN 47711
Contacts Al Perry Telephone (812) 867-7727
Parent Company _____
Address _____
Contacts _____ Telephone _____

GENERAL INFORMATION

Mine Type Surface and underground Mining Method *
Mine Status Permit submitted 1997 Start-Up Date **
No. of Employees _____ Union Affiliation Non-union
No. of Acres in Permit 18,000
Surface: Federal _____ State _____ Private 100
Mineral: Federal _____ State _____ Private 100

GEOLOGIC INFORMATION

Geologic Unit Raton Formation Geologic Age Paleocene
Coal Zone(s) or Bed(s) Primero seam, Weston seam, and Ciruela seam

Coal Thickness(es) 3-9 ft
Cleat Orientation and Spacing _____
Dip of Bedding 1% NE Strike of Bedding _____
Overburden Thickness(es) 0-350 ft Curuela, 200 ft Weston, 250 ft Primero
Interburden Thickness _____

COAL QUALITY

Sample 1

Sample 2

Sample 3

Sample 4

Seam _____

Rank _____

Moisture (%) _____

7.00

Ash (%) _____

10.00–12.00

Fixed Carbon (%) _____

57.00

Volatile Matter (%) _____

31.00

Sulfur (%) _____

0.60

Heating Value (Btu/lb.) _____

12,500–13,000

Free Swelling Index _____

7.5–9

Hardgrove Grindability _____

65

Ash-Softening Temperature (°F) _____

2,000–2,300

Methane Characteristics _____

Reflectance Data _____

COAL PRODUCTION

1995 Production _____ 1996 Production _____

Cumulative Production Through 1996 _____

Projected Production (tpy) 1997 _____

Remaining Reserves/Life of Mine _____

Shifts Per Day _____

Production Per Shift _____

Equipment _____

Haulage _____

Preparation Plant _____ Tipple _____

SALES DATA

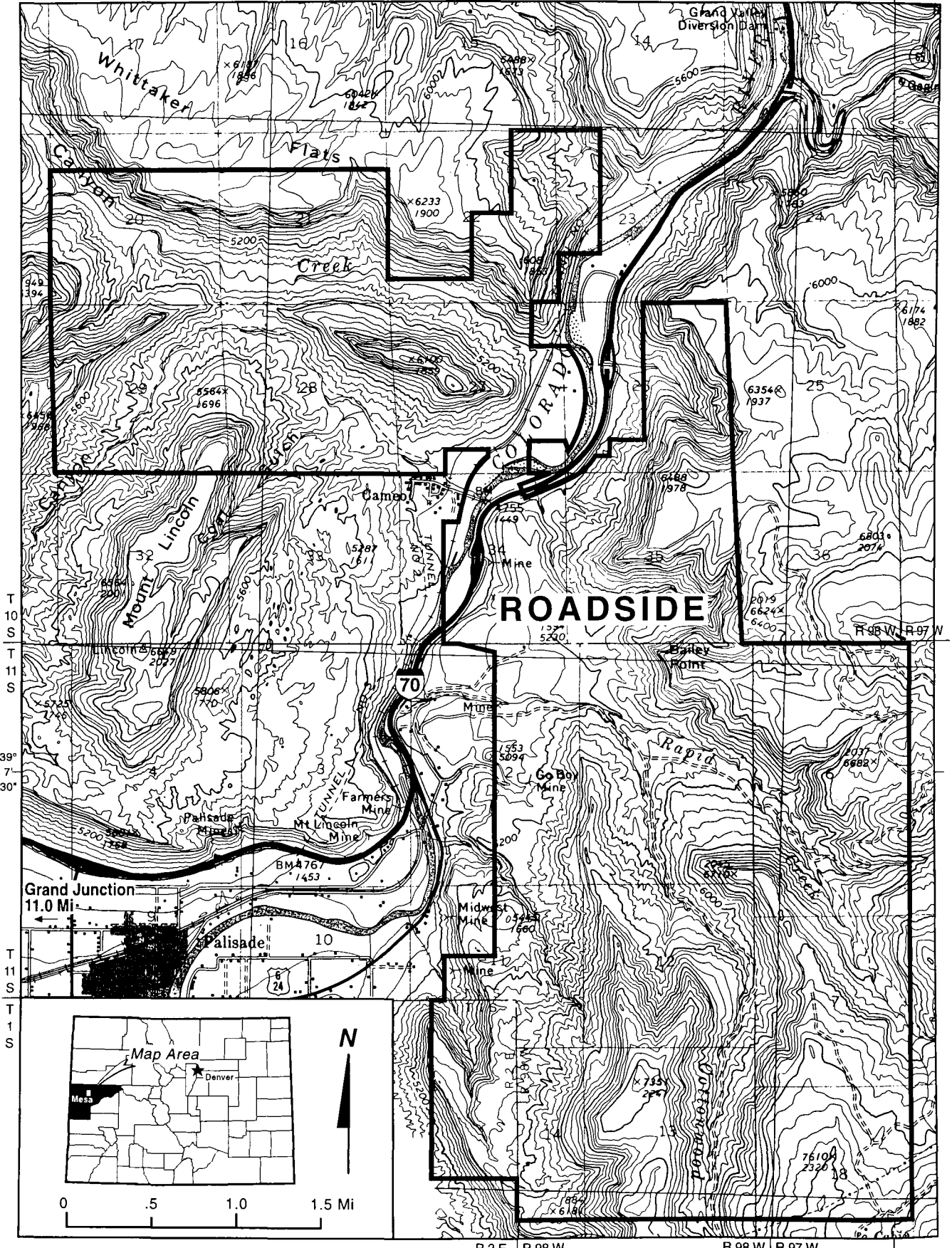
Percent In-State _____ Destination _____ Use _____

Percent Out-of-State _____ Destination _____ Use _____

Percent Export _____ Destination _____ Use _____

Transportation Mode/Mixed Modes _____

ADDITIONAL INFORMATION AND COMMENTS**Surface—contour and mountaintop removal, Underground—longwall and room and pillar****Anticipated late 1997 or early 1998**Geologic Map Reference: Johnson, R.B., 1969, Geologic Map of the Trinidad Quadrangle, South-Central**Colorado: U.S. Geological Survey Misc. Invest. Map I-558, scale 1:250,000*



ROADSIDE MINE, North and South Portals

Map No. 9 M.L.R.D. Permit No. C-81-041
Previous Mine Names Cameo Mine and Roadside Mine

LOCATION INFORMATION

County Mesa
Permit Location (Sec., T., R.) Sec. 20-23, 26-29, 34-35, T. 10 S., R. 98 W.; Sec. 1-2, 11-14, T. 11 S., R. 98 W.; Sec. 6,7,18, T. 11 S., R. 97 W.; Sec. 1, T. 1. S., R. 2 E., UTE P.M.
Coal Region Uinta Field Grand Mesa
Topographic Quadrangle Cameo, Palisade

COMPANY INFORMATION

Mine Operator Powderhorn Coal Company
Address P.O. Box 1430, Palisade, CO 81526
Contacts Larry Reschke Telephone (970) 464-7951
Parent Company Peabody Holding Company
Address 301 N. Memorial Drive, P.O. Box 373, St. Louis, MO 63166
Contacts James Campbell Telephone (314) 342-3400

GENERAL INFORMATION

Mine Type Underground Mining Method Continuous miners
Mine Status Producing Start-Up Date 1977
No. of Employees 75 Union Affiliation Non-union
No. of Acres in Permit 10,170
Surface: Federal X State _____ Private X
Mineral: Federal X State _____ Private X

GEOLOGIC INFORMATION

Geologic Unit Mt. Garfield Formation Geologic Age Cretaceous
Coal Zone(s) or Bed(s) Cameo B seam
Coal Thickness(es) 4.4-9.4 ft
Cleat Orientation and Spacing 37° face, 307° butt, varied spacing, cleat dip 90°
Dip of Bedding 5% Strike of Bedding N 65 W
Overburden Thickness(es) 0-2,000 ft
Interburden Thickness Cameo B seam lies 400-450 ft above the Palisade seam, which occurs at the base of the Mt. Garfield Formation and 35-90 ft below the Carbonera seam

COAL QUALITY

	Sample 1	Sample 2
Seam	<i>Cameo B (blend base)</i>	<i>Cameo B (100% washed)</i>
Rank		
Moisture (%)	8.0	9.3
Ash (%)	16.0	9.1
Fixed Carbon (%)	43.4	47
Volatile Matter (%)	32.6	35
Sulfur (%)	0.5	0.5
Heating Value (Btu/lb.)	10,800	11,800
Free Swelling Index	1.5	0.5
Hardgrove Grindability	48	
Ash-Softening Temperature (°F)		
Methane Characteristics		
Reflectance Data		

COAL PRODUCTION

1995 Production 589,064 tons 1996 Production 625,885 tons
 Cumulative Production Through 1996 9,063,923 tons
 Projected Production (tpy) 1997 _____
 Remaining Reserves/Life of Mine 35 million tons/17+ years
 Shifts Per Day 3
 Production Per Shift _____
 Equipment continuous miners (remote with scrubbers) and shuttle cars
 Haulage belt
 Preparation Plant heavy media Tipple _____

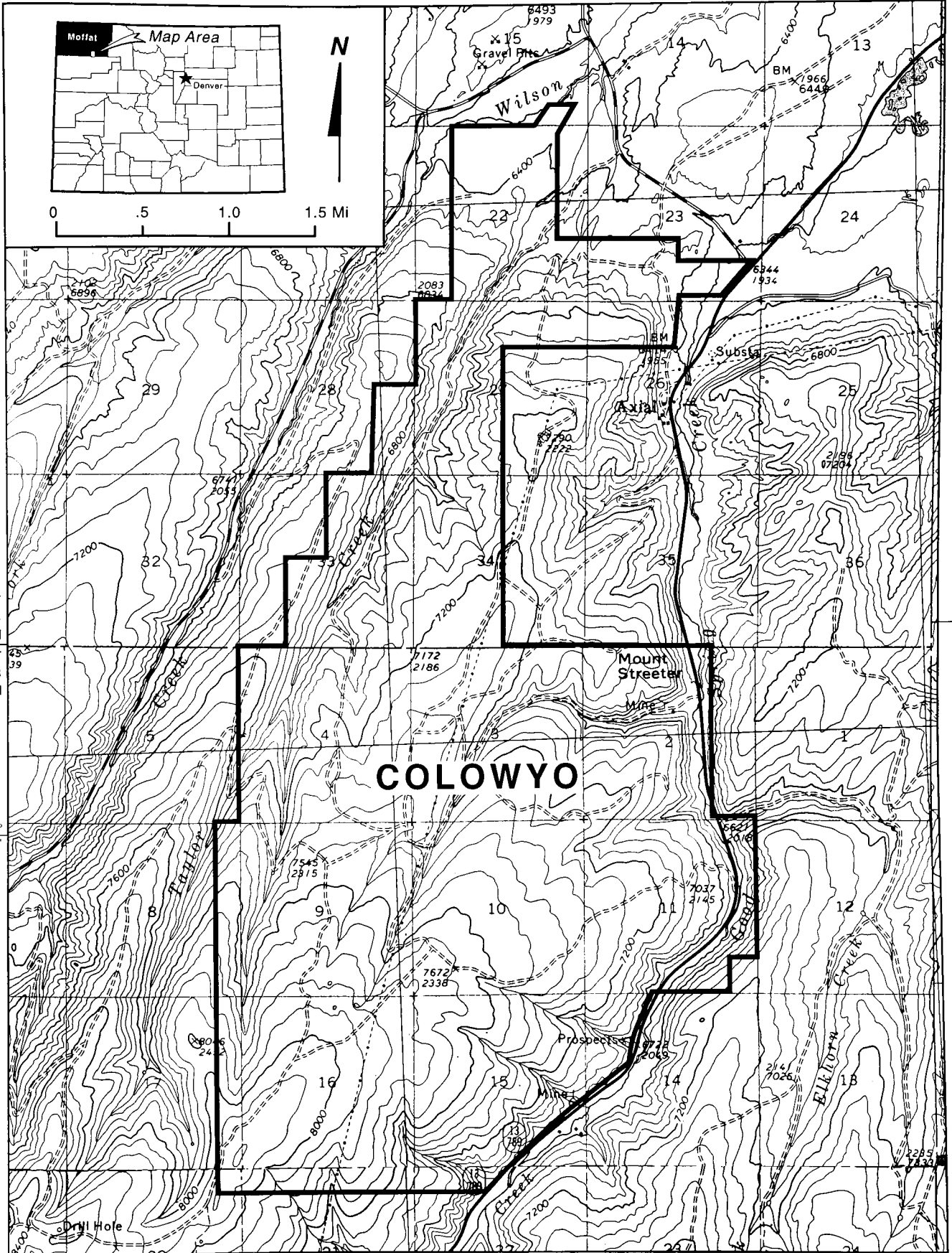
SALES DATA

Percent In-State 33 Destination Palisade Use Steam
 Percent Out-of-State 67 Destination Iowa Use Steam
 Percent Export _____ Destination _____ Use _____
 Transportaton Mode/Mixed Modes Railroad—D&RGW (Southern Pacific)

ADDITIONAL INFORMATION AND COMMENTS

Washed quality and blended quality mixed per customer request.

Geologic Map Reference: Ellis, M.S. and Gabaldo V., 1989, Geologic Map and Cross Sections of Parts of the Grand Junction and Delta 30' x 60' Quadrangles, West-Central Colorado: U.S. Geological Survey Map C-124, scale 1:100,000.



COLOWYO

COLOWYO MINE

Map No. 10 M.L.R.D. Permit No. C-81-019

Previous Mine Names _____

LOCATION INFORMATION

County Moffat

Permit Location (Sec., T., R.,) Sec. 15,22,23,26-28,33,34, T. 4 N., R. 93 W. and Sec. 2-4, 8-11, 14-17, 20-22, T. 3 N., R. 93 W.

Coal Region Uinta Field Danforth Hills

Topographic Quadrangle Ninemile Gap, Axial

COMPANY INFORMATION

Mine Operator Colowyo Coal Company L.P.

Address 5731 State Highway 13, Meeker, CO 81641

Contacts John Harmon, G.M. Telephone (970) 824-1501

Parent Company Kennecott Energy

Address Gillette, WY

Contacts Greg Boyce Telephone (307) 687-6000

GENERAL INFORMATION

Mine Type Surface Mining Method Dragline, truck, & shovel

Mine Status Producing Start-Up Date 1976

No. of Employees 316 Union Affiliation Non-union

No. of Acres in Permit 7,402

Surface: Federal X State X Private X

Mineral: Federal X State X Private X

GEOLOGIC INFORMATION

Geologic Unit Williams Fork Formation Geologic Age Upper Cretaceous

Coal Zone(s) or Bed(s) 8 seams: Y3+Y2, X, A2+A3, B, C, D, E, F

Coal Thickness(es) 57.9 ft total; Y3+Y2—6.8 ft, X—12.3 ft, A2+A3—6.7 ft, B—5.3 ft *

Cleat Orientation and Spacing 132°

Dip of Bedding 0-20° N Strike of Bedding E-W

Overburden Thickness(es) 450 ft total overburden and interburden

Interburden Thickness _____

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>Composite</i>			
Rank	<i>Sub B</i>			
Moisture (%)	16.72			
Ash (%)	5.76			
Fixed Carbon (%)	44.80			
Volatile Matter (%)	32.77			
Sulfur (%)	0.38			
Heating Value (Btu/lb.)	10,461			
Free Swelling Index	N/A			
Hardgrove Grindability	49			
Ash-Softening Temperature (°F)	2,300			
Methane Characteristics	N/A			
Reflectance Data	N/A			

COAL PRODUCTION

1995 Production	<u>4,395,865 tons</u>	1996 Production	<u>5,713,564 tons</u>
Cumulative Production Through 1996	<u>68,297,127 tons</u>		
Projected Production (tpy) 1997	<u>6,000,000</u>		
Remaining Reserves/Life of Mine	<u>100 million tons</u>		
Shifts Per Day	<u>2—12 hrs in 1996, 7 days/week</u>		
Production Per Shift	<u></u>		
Equipment	<u>Shovels, draglines, overburden drills, bulldozers, front-end loaders</u>		
Haulage	<u>Haulage trucks out of pit to crusher and screens</u>		
Preparation Plant	<u>Crusher and screens</u>	Tipple	<u>Yes</u>

SALES DATA

Percent In-State	<u>40</u>	Destination	<u>**</u>	Use	<u>Steam, industrial</u>
Percent Out-of-State	<u>60</u>	Destination	<u>***</u>	Use	<u>Steam, industrial</u>
Percent Export	<u>0</u>	Destination	<u></u>	Use	<u></u>
Transportation Mode/Mixed Modes	<u>Union Pacific Railroad</u>				

ADDITIONAL INFORMATION AND COMMENTS

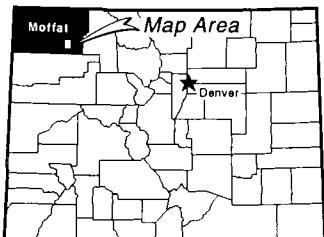
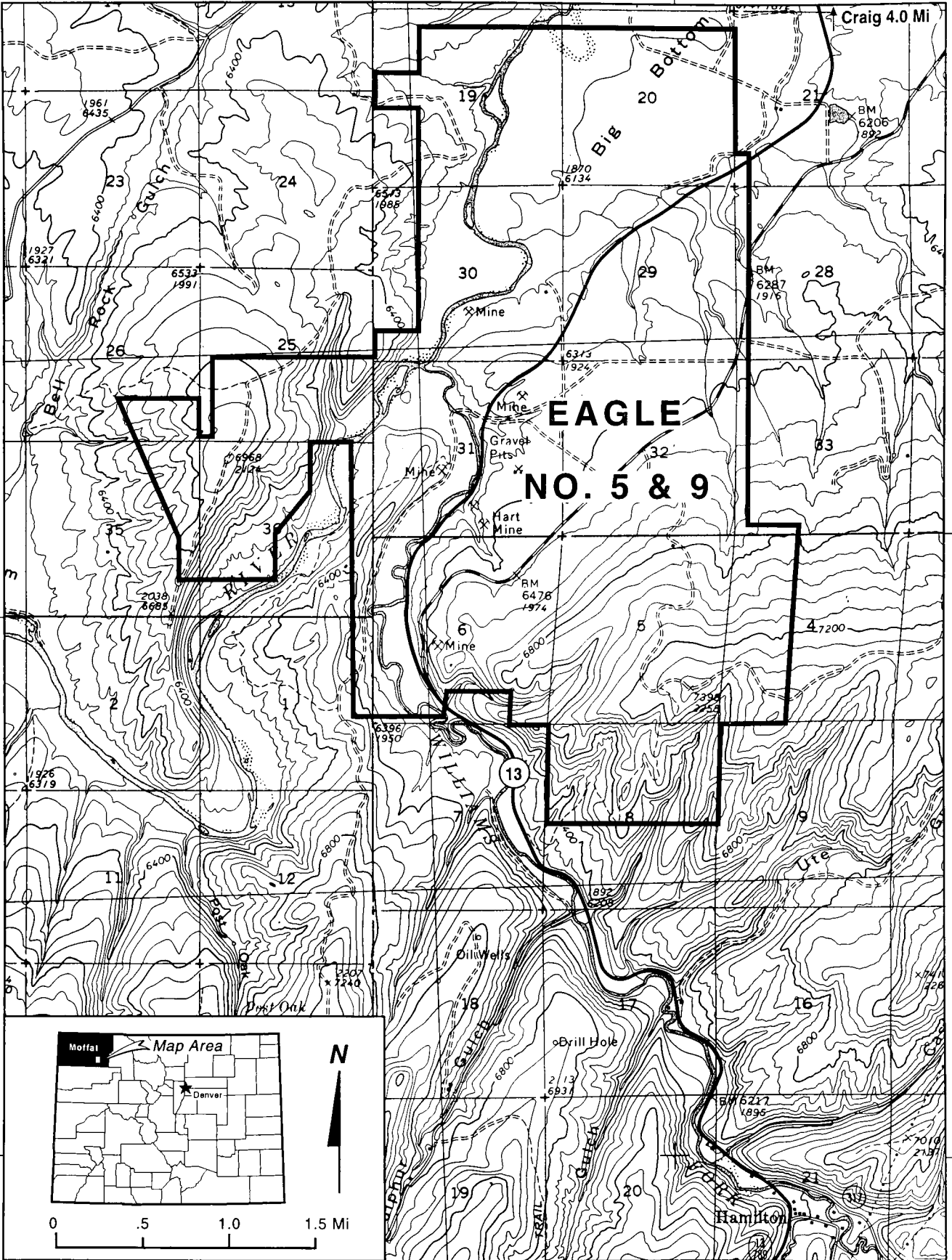
*C—6.0 ft, D—10.1 ft, E—6.8 ft, F—5.4 ft

**Colorado Springs; Public Service Co. of Colorado, Cherokee Plant; Craig

***NB, TX, IL, IA, UT, TN, KN, AZ

Geologic Map Reference: Hardy, John and Zook, Jon, 1997, Geologic Map and Cross Sections of the Axial Quadrangle, Moffat County, Colorado: Colo. Geological Survey Open File Report 97-5, scale 1:24,000

Craig 4.0 Mi



T 6 N
T 5 N

40°
22'
30"

EAGLE MINE No. 5 & 9

Map No. 11 M.L.R.D. Permit No. C-81-044
Previous Mine Names _____

LOCATION INFORMATION

County Moffat
Permit Location (Sec., T., R.,) Secs. 19,20,21,28-33, T. 6 N., R. 91 W. and Secs. 4-6, 8, T. 5 N., R. 91 W.,
and Secs. 25,26,35,36, T. 6 N., R. 92 W.
Coal Region Green River Field Yampa
Topographic Quadrangle Round Bottom, Castor Gulch

COMPANY INFORMATION

Mine Operator Cyprus Empire Corporation
Address P.O. Box 68, Craig, CO 81626
Contacts Rick Mills Telephone (970) 879-8050
Parent Company Cyprus Coal Company
Address 9100 E. Mineral Circle, Englewood, CO 80112
Contacts Garold R. Spindler, President Telephone (303) 643-5000

GENERAL INFORMATION

Mine Type Underground Mining Method Longwall/continuous
Mine Status Idle Start-Up Date Early 1970s
No. of Employees 8 Union Affiliation UMWA
No. of Acres in Permit 6,387
Surface: Federal X State X Private X
Mineral: Federal X State X Private X

GEOLOGIC INFORMATION

Geologic Unit Williams Fork Formation Geologic Age Cretaceous
Coal Zone(s) or Bed(s) F

Coal Thickness(es) 10.5 ft
Cleat Orientation and Spacing 320-314° face cleat fairly well developed in NWSW 31, 6N, 91W
Dip of Bedding 12-15° Strike of Bedding NW
Overburden Thickness(es) 0-900 ft

Interburden Thickness _____

COAL QUALITY**Sample 1****Sample 2**

Seam	F	
Rank	Sub B	
Moisture (%)	8.93–12.84	7.00
Ash (%)	4.99–10.36	10.00
Fixed Carbon (%)	41.75–52.85	49.37
Volatile Matter (%)	35.43–38.83	37.88
Sulfur (%)	0.46–0.57	0.58
Heating Value (Btu/lb.)	10,377–11,567	10,500
Free Swelling Index		
Hardgrove Grindability		
Ash-Softening Temperature (°F)	2,700	
Methane Characteristics		
Reflectance Data		

COAL PRODUCTION

1995 Production 745,074 tons (Eagle No. 5) 1996 Production _____
 Cumulative Production Through 1996 19,719,949 tons
 Projected Production (tpy) 1997 Idle, standby
 Remaining Reserves/Life of Mine 25 years
 Shifts Per Day 1–8 hrs
 Production Per Shift Hemscheidt shields, Anderson 1250 shearer
 Equipment Anderson Mavor, Kloeckner Becroit face conveyor
 Haulage _____
 Preparation Plant _____ Tipple Yes

SALES DATA

Percent In-State 93 Destination * Use Steam
 Percent Out-of-State 7 Destination TX, MS, IL Use Steam
 Percent Export _____ Destination _____ Use _____
 Transportaton Mode/Mixed Modes Union Pacific Railroad

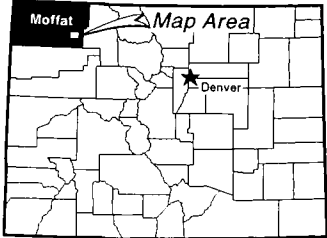
ADDITIONAL INFORMATION AND COMMENTS

*Boulder, Colorado Springs, Craig, Denver

Geologic Map Reference: See Seneca II

107°37'30"

R 91 W | R 90 W



N

0 0.5 1.0 1.5 Mi

Craig 2.0 Mi ↑

Thompson Hill

Walker Mine

Flume

Denker

Gulch

Gulch

Gulch

Big

13

28

TRAPPER

WILLIAMS FORK

Drill Hole

Spring 6

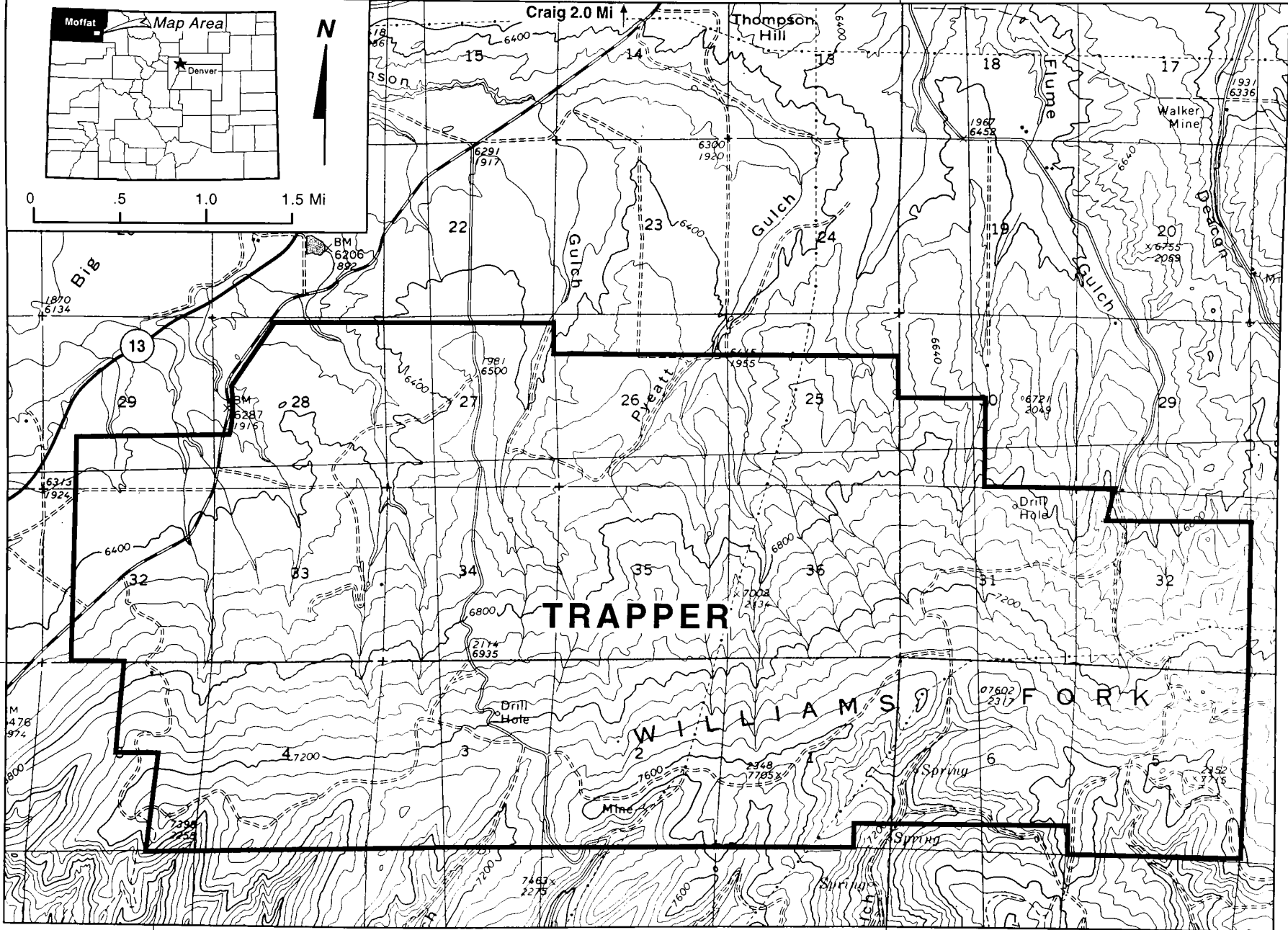
Spring

Mine

Spring

35

T 6 N
T 5 N



TRAPPER MINE

Map No. 12 M.L.R.D. Permit No. C-81-010

Previous Mine Names _____

LOCATION INFORMATION

County Moffat

Permit Location (Sec., T., R.,) Secs. 5,6, T. 5 N., R. 90 W.; Secs. 1-5, T. 5 N., R. 91 W.; Sec. 30-32, T. 6 N., R. 90 W.; Secs. 25-29, 32-36, T. 6 N., R. 91 W.

Coal Region Green River Field Yampa

Topographic Quadrangle Castor Gulch

COMPANY INFORMATION

Mine Operator Trapper Mining Inc.

Address P.O. Box 187, Craig, CO 81626

Contacts Alan Rowley Telephone (970) 824-4401

Parent Company Saltriver, Tri-State, & Platte River Power Authority, Pacificorp

Address P.O. Box 1149, Montrose, CO 81402

Contacts W. Gordon Peters Telephone (303) 249-4501

GENERAL INFORMATION

Mine Type Surface Mining Method Dragline

Mine Status Producing Start-Up Date 1977

No. of Employees 147 Union Affiliation Operating Engineers

No. of Acres in Permit 10,382

Surface: Federal _____ State 45% Private 55%

Mineral: Federal 75% State 22% Private 3%

GEOLOGIC INFORMATION

Geologic Unit Upper Williams Fork Formation Geologic Age Cretaceous

Coal Zone(s) or Bed(s) G, H, I, Q, R

Coal Thickness(es) G—4 ft, H—6 ft, I—5 ft, Q—13 ft, R—4 ft

Cleat Orientation and Spacing 327° face, 40° butt; primary 0.5-2 inch spacing

Dip of Bedding 16% Strike of Bedding SE

Overburden Thickness(es) 30-140 ft

Interburden Thickness 2-50 ft

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>Average</i>			
Rank	<i>Sub B</i>			
Moisture (%)	16	17.5		
Ash (%)	8	7.5		
Fixed Carbon (%)	48	44.4		
Volatile Matter (%)	33	30.20		
Sulfur (%)	0.45	0.4		
Heating Value (Btu/lb.)	9,800	9,900		
Free Swelling Index				
Hardgrove Grindability				
Ash-Softening Temperature (°F)	2,120	2,242		
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production	<u>2,024,186 tons</u>	1996 Production	<u>1,974,410 tons</u>
Cumulative Production Through 1996	<u>40,642,754 tons</u>		
Projected Production (tpy) 1997	<u></u>		
Remaining Reserves/Life of Mine	<u>Surface—36.6 mil tons, Underground—200 mil tons</u>		
Shifts Per Day	<u>1 (4—10 hrs/wk)</u>		
Production Per Shift	<u>55 tons/man shift, 10,500 tons total</u>		
Equipment	<u>3 draglines, 2 drills, 8 bulldozers, front-end loaders, 2 hydraulic excavators</u>		
Haulage	<u>5 haul trucks from pit to power plant</u>		
Preparation Plant	<u>None</u>	Tipple	<u></u>

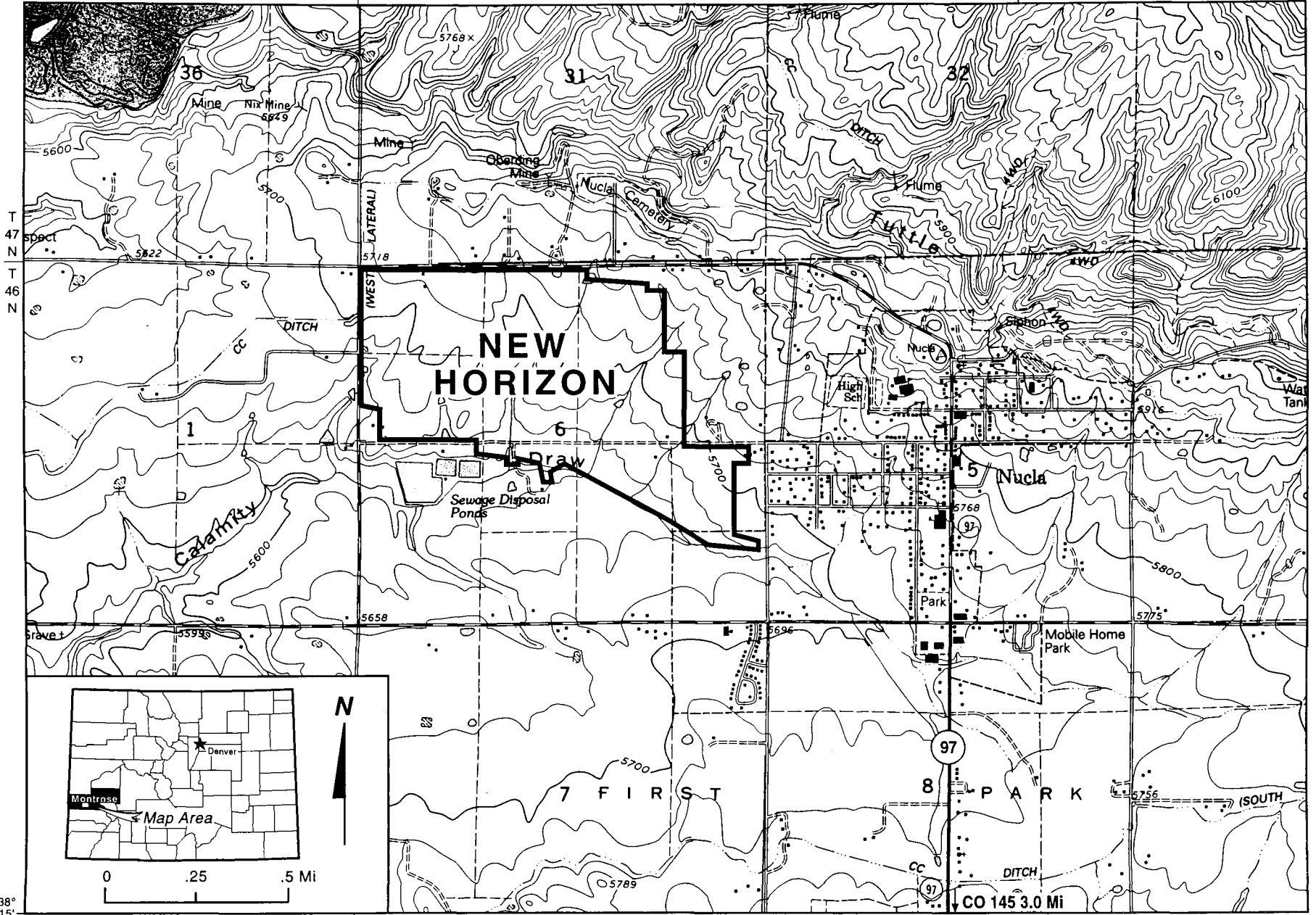
SALES DATA

Percent In-State	<u>100</u>	Destination	<u>Craig Units 1 & 2</u>	Use	<u>Steam</u>
Percent Out-of-State	<u></u>	Destination	<u></u>	Use	<u></u>
Percent Export	<u></u>	Destination	<u></u>	Use	<u></u>
Transportation Mode/Mixed Modes	<u>Truck</u>				

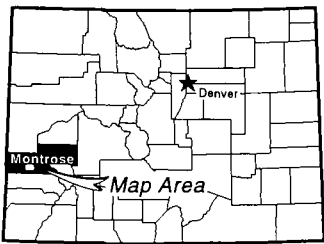
ADDITIONAL INFORMATION AND COMMENTS

All coal is burned at the Colorado Ute Craig Generating Station Units 1 & 2

Geologic Map Reference: See Seneca II



38



0 .25 .5 Mi

38° 15'

NEW HORIZON MINE

Map No. 13 M.L.R.D. Permit No. C-81-008
Previous Mine Names Nucla and Nucla East (2)

LOCATION INFORMATION

County Montrose
Permit Location (Sec., T., R.,) Mining—Sec. 6, T. 46 N., R. 15 W.; Reclaiming—Sec. 25, 36, T. 47 N.,
R. 16 W.; Sec. 31, T. 47 N., R. 15 W.
Coal Region San Juan River Field Nucla-Naturita
Topographic Quadrangle Nucla

COMPANY INFORMATION

Mine Operator Western Fuels Colorado-New Horizon Mine
Address P.O. Box 628, Nucla, CO 81424
Contacts R. Lance Wade Telephone (970) 864-2165
Parent Company Western Fuels Colorado, LLC
Address 405 Urban Street, Suite 305, Lakewood, CO 80228
Contacts Raja Upadhyay Telephone (303) 988-9626

GENERAL INFORMATION

Mine Type Surface Mining Method Shovel, truck
Mine Status Producing Start-Up Date 1993
No. of Employees 25 Union Affiliation UMWA Local 1281
No. of Acres in Permit 659
Surface: Federal _____ State _____ Private X
Mineral: Federal _____ State _____ Private X

GEOLOGIC INFORMATION

Geologic Unit Dakota Formation Geologic Age Cretaceous
Coal Zone(s) or Bed(s) 1 & 2
Coal Thickness(es) 1—1.6–3.3 ft, 2—5.9–7.9 ft
Cleat Orientation and Spacing 63° face, 308° butt, 0.08–3 ft spacing
Dip of Bedding 1–2° SW Strike of Bedding N 25° W. to N 45° W
Overburden Thickness(es) 0–100 ft
Interburden Thickness 6–10 ft

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>Dakota</i>			
Rank				
Moisture (%)	6.7			
Ash (%)	15.1	18%		
Fixed Carbon (%)	47.0			
Volatile Matter (%)	30.7			
Sulfur (%)	0.81			
Heating Value (Btu/lb.)	11,680	10,000-10,300		
Free Swelling Index				
Hardgrove Grindability				
Ash-Softening Temperature (°F)	2,750			
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production	374,266 tons	1996 Production	361,667 tons
Cumulative Production Through 1996	1,219,979 tons		
Projected Production (tpy) 1997			
Remaining Reserves/Life of Mine	20-25 years		
Shifts Per Day	2		
Production Per Shift	850 tons		
Equipment	<i>Shovels, dozers, trucks, overburden drill</i>		
Haulage			
Preparation Plant	N/A	Tipple	N/A

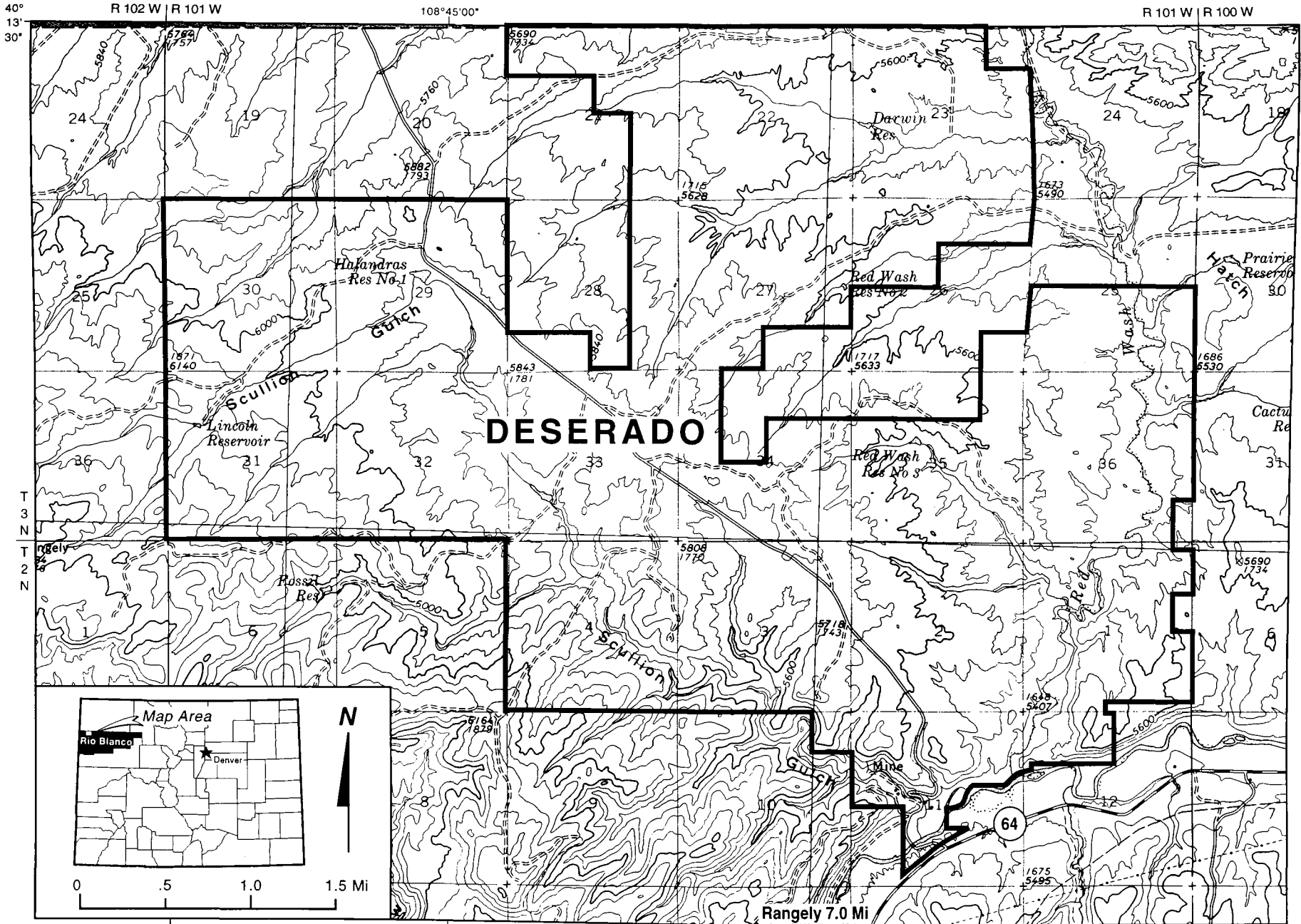
SALES DATA

Percent In-State	100	Destination	<i>Nucla Power Plant*</i>	Use	<i>Steam</i>
Percent Out-of-State		Destination		Use	
Percent Export		Destination		Use	
Transportation Mode/Mixed Modes	<i>Trucks haul from pit to the power plant</i>				

ADDITIONAL INFORMATION AND COMMENTS

**Fluidized bed combustion unit*

Geologic Map Reference: Williams, P.L., 1964, Geology, Structure and Uranium Deposits of the Moab Quadrangle; Colorado and Utah: U.S. Geological Survey Map I-360, 1: 250,000



DESERADO MINE

Map No. 14 M.L.R.D. Permit No. C-81-018

Previous Mine Names _____

LOCATION INFORMATION

County Rio Blanco

Permit Location (Sec., T., R.) Sec. 1-4,10-12, T. 2 N., R. 101 W. and Sec. 21-23, 25-36, T. 3 N., R. 101 W.

Coal Region Uinta Field Lower White River

Topographic Quadrangle Rangley NE, Cactus Reservoir

COMPANY INFORMATION

Mine Operator Western Fuels-Utah, Inc.

Address P.O. Box 1067, Rangely, CO 81648

Contacts Alan Hillard, Mine Manager Telephone (970) 675-8431

Parent Company Deseret Generation and Transmission Coop.

Address 8722 S. 300 W., Sandy, UT 84070

Contacts Edward Thatcher Telephone (801) 566-1238

GENERAL INFORMATION

Mine Type Underground Mining Method Longwall

Mine Status Producing Start-Up Date 1982

No. of Employees 252 Union Affiliation UMWA No. 1984

No. of Acres in Permit 9,496.7

Surface: Federal X State _____ Private X

Mineral: Federal X State _____ Private _____

GEOLOGIC INFORMATION

Geologic Unit Williams Fork Formation Geologic Age Upper Cretaceous

Coal Zone(s) or Bed(s) D

Coal Thickness(es) D—8-9 ft

Cleat Orientation and Spacing 84-89° face, 170-175° butt

Dip of Bedding 3-7° Strike of Bedding N 46 W

Overburden Thickness(es) 1,600-2,100 ft

Interburden Thickness 10-50 ft

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	A/B/C	D		
Rank	Sub A	Sub A		
Moisture (%)	12.0	11.3	11.0	
Ash (%)	16.1	13.1	8.0	
Fixed Carbon (%)				
Volatile Matter (%)				
Sulfur (%)	0.41	0.44	0.41	
Heating Value (Btu/lb.)	9,400	10,000	10,930	
Free Swelling Index				
Hardgrove Grindability				
Ash-Softening Temperature (°F)	2,550	2,600		
Methane Characteristics	Low	Low		
Reflectance Data				

COAL PRODUCTION

1995 Production 760,255 tons 1996 Production 530,454 tons
Cumulative Production Through 1996 13,625,668 tons
Projected Production (tpy) 1997 _____
Remaining Reserves/Life of Mine Year 2033
Shifts Per Day 3—8 hrs
Production Per Shift _____
Equipment _____
Haulage _____
Preparation Plant _____ Tipple _____

SALES DATA

Percent In-State _____ Destination _____ Use _____
Percent Out-of-State 100 Destination Utah (Bonanza Station) Use Steam
Percent Export _____ Destination _____ Use _____
Transportation Mode/Mixed Modes Electric unit train

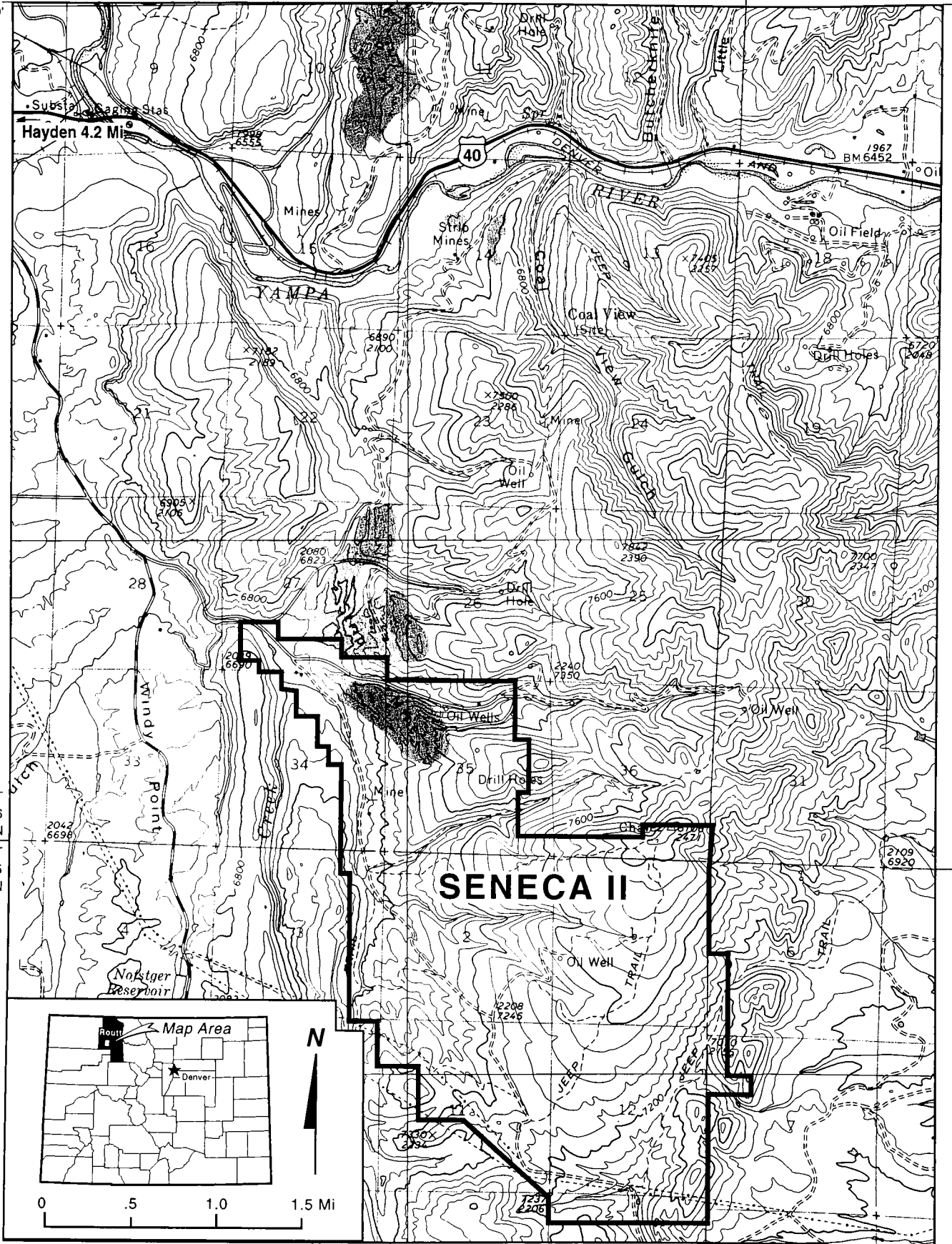
ADDITIONAL INFORMATION AND COMMENTS

Captive fuel supply for the Bonanza Power Plant in Utah. Coal is delivered by an electric railroad to the power plant. The "D" seam is currently being mined.
Geologic Map Reference: Barnum, B.E., and Garrigues, R.S., 1980, Geologic Map and Coal Sections of the Cactus Reservoir Quadrangle, Rio Blanco and Moffat Counties, Colorado: U.S. Geological Survey Map MF-1179, scale 1:24,000.

40°
30'

106°07'30"

R 87 W R 86 W



SENECA II

SENECA II MINE

Map No. 15 M.L.R.D. Permit No. C-80-005
Previous Mine Names _____

LOCATION INFORMATION

County Routt
Permit Location (Sec., T., R.,) Sec. 27,34-36, T. 6 N., R. 87 W., Sec. 1-3, 11-13, T. 5 N., R. 87 W.; Sec. 6,7, T. 5 N., R. 86 W.
Coal Region Green River Field Yampa
Topographic Quadrangle Milner, Mt. Harris

COMPANY INFORMATION

Mine Operator Seneca Coal Company
Address P.O. Box Drawer D., Hayden CO 81639
Contacts G. Brad Brown Telephone (970) 276-3707
Parent Company Peabody Coal Company
Address 1300 South Yale, Flagstaff, AZ 86001
Contacts Gary L. Melvin Telephone (520) 714-5253

GENERAL INFORMATION

Mine Type Surface Mining Method Dragline
Mine Status Producing Start-Up Date 1968
No. of Employees 82* Union Affiliation UMWA
No. of Acres in Permit 3,457
Surface: Federal _____ State X Private X
Mineral: Federal X State X Private X

GEOLOGIC INFORMATION

Geologic Unit Lower Williams Fork Formation Geologic Age Late Cretaceous
Coal Zone(s) or Bed(s) Wolf Creek, Wadge
Coal Thickness(es) Wolf Creek—average 15.0 ft; Wadge—9.0-10.0 ft, average 9.8 ft
Cleat Orientation and Spacing _____
Dip of Bedding 6-20° Strike of Bedding _____
Overburden Thickness(es) Wolf Creek average 111.3 ft, Wadge average 36.8 ft, range 0-120 ft
Interburden Thickness _____

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	Wolf Creek	Wadge		
Rank				
Moisture (%)	12.00	12.00		
Ash (%)	10.79	7.74		
Fixed Carbon (%)				
Volatile Matter (%)				
Sulfur (%)				
Heating Value (Btu/lb.)	0.54	0.49		
Free Swelling Index	12,137	12,581		
Hardgrove Grindability				
Ash-Softening Temperature (°F)				
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production 738,424 tons 1996 Production _____

Cumulative Production Through 1995 30,805,180 tons

Projected Production (tpy) 1997 _____

Remaining Reserves/Life of Mine 0

Shifts Per Day 2—8 hrs

Production Per Shift 3,000–3,500 tons

Equipment Draglines, overburden drills, coal drills, loaders, haul trucks

Haulage _____

Preparation Plant _____ Tipple _____

SALES DATA

Percent In-State 100 Destination Hayden Power Plant Use Steam

Percent Out-of-State _____ Destination _____ Use _____

Percent Export _____ Destination _____ Use _____

Transportation Mode/Mixed Modes Haulage trucks from mine to power plant

ADDITIONAL INFORMATION AND COMMENTS

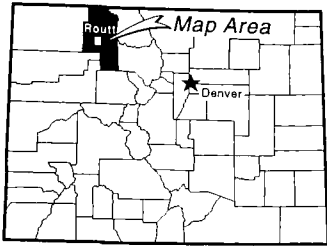
**Total for Seneca Coal Company—all mines*

Surface reserves were stripped out in October 1996. The 650 dragline moved to the Yoast Mine.

Geologic Map Reference: Tweto, Ogden, 1976, Geologic Map of the Craig 1° x 2° Quadrangle, Northwestern Colorado: U.S. Geological Survey Misc. Invest. Series I-972, scale 1:250,000.

107°15'

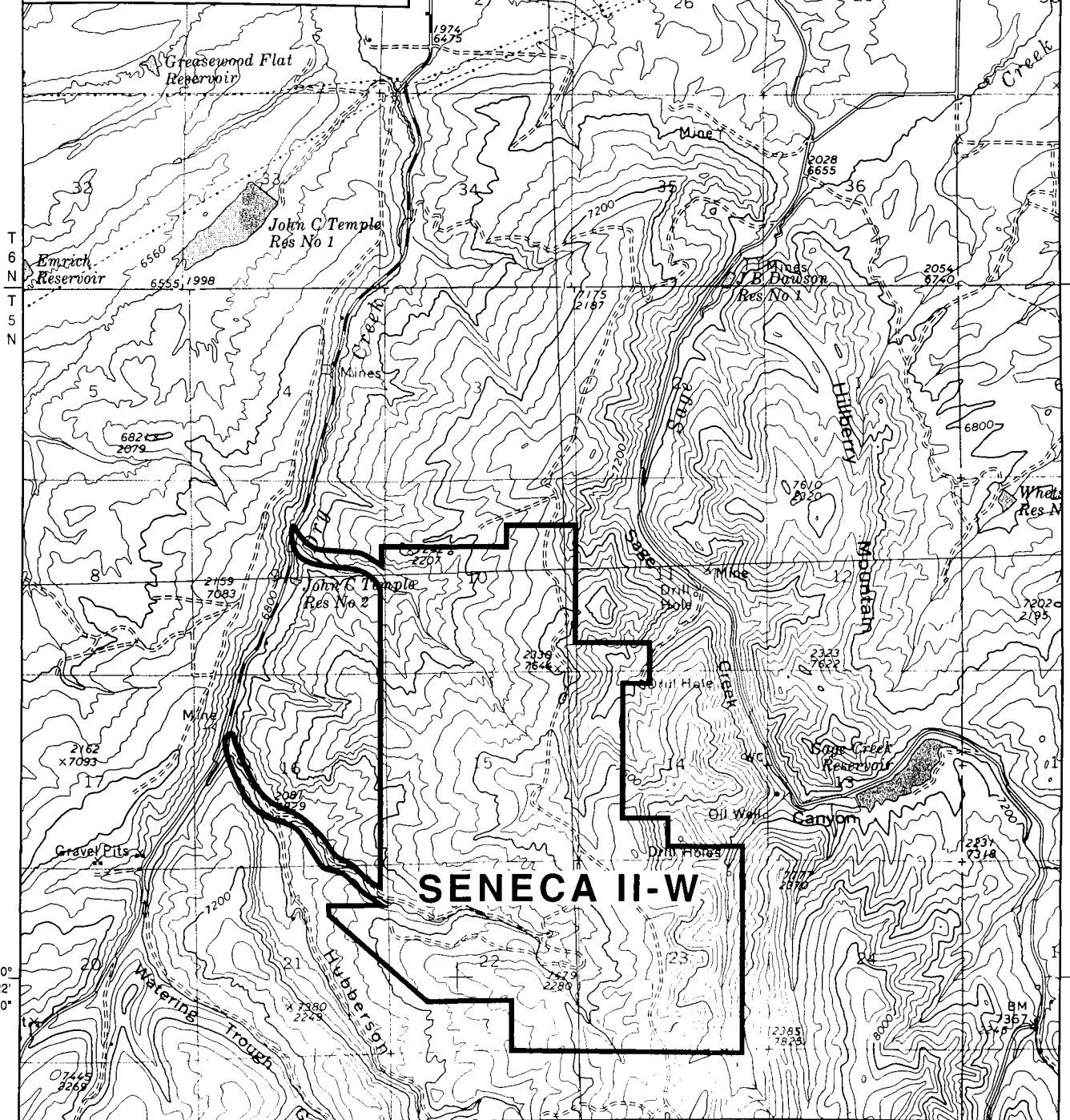
R 88 W R 87 W



N

0 0.5 1.0 1.5 Mi

Hayden 2.0 Mi



T 6 N
T 5 N

40°
22'
30°

SENECA II-W

SENECA II-W MINE

Map No. 16 M.L.R.D. Permit No. C-82-057

Previous Mine Names _____

LOCATION INFORMATION

County Routt

Permit Location (Sec., T., R.) Sec. 9-11, 14-16, 21-23, T. 5 N., R. 88 W.

Coal Region Green River Field Yampa

Topographic Quadrangle Dunckley, Hayden, Hayden Gulch, Mt. Harris

COMPANY INFORMATION

Mine Operator Seneca Coal Company

Address P.O. Box Drawer D, Hayden, CO 81659

Contacts G. Brad Brown Telephone (970) 276-3707

Parent Company Peabody Western Coal Company

Address 1300 South Yale, Flagstaff, AZ 86001

Contacts Gary L. Melvin Telephone (520) 774-5253

GENERAL INFORMATION

Mine Type Surface Mining Method Dragline

Mine Status Producing Start-Up Date 1990

No. of Employees See Seneca II Union Affiliation UMWA

No. of Acres in Permit 2,676.6

Surface: Federal X State X Private X

Mineral: Federal X State _____ Private _____

GEOLOGIC INFORMATION

Geologic Unit Lower Williams Fork Formation Geologic Age Late Cretaceous

Coal Zone(s) or Bed(s) Wadge, Wolf Creek, Sage Creek

Coal Thickness(es) Wadge—8.9-12.2 ft, average 11.7 ft; Wolf Creek—average 20.4 ft;

Sage Creek—3.4-5.4 ft, average 4.6 ft

Cleat Orientation and Spacing _____

Dip of Bedding 8-14° Strike of Bedding _____

Overburden Thickness(es) Wadge—average 60.8 ft, Wolf Creek—average 95.7 ft, Sage

Creek—average 42.0 ft, range 0-100 ft

Interburden Thickness _____

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>Wadge</i>	<i>Wolf Creek</i>	<i>Sage Creek</i>	
Rank				
Moisture (%)	13.63	13.33	13.94	
Ash (%)	7.84	11.11	6.46	
Fixed Carbon (%)				
Volatile Matter (%)				
Sulfur (%)	0.48	0.61	0.68	
Heating Value (Btu/lb.)	12,322	11,908	12,325	
Free Swelling Index				
Hardgrove Grindability				
Ash-Softening Temperature (°F)				
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production 1,005,358 tons 1996 Production _____
 Cumulative Production Through 1995 4,682,261 tons
 Projected Production (tpy) 1997 _____
 Remaining Reserves/Life of Mine 8 years
 Shifts Per Day 2—8 hr
 Production Per Shift See Seneca II
 Equipment Dragline, overburden drills, coal drills, loaders, haul trucks
 Haulage _____
 Preparation Plant _____ Tipple _____

SALES DATA

Percent In-State 100 Destination Hayden Power Plant Use Steam
 Percent Out-of-State _____ Destination _____ Use _____
 Percent Export _____ Destination _____ Use _____
 Transportaton Mode/Mixed Modes Haulage trucks from mine to power plant

ADDITIONAL INFORMATION AND COMMENTS

Geologic Map Reference: See Seneca II

YOAST MINE

Map No. 17 M.L.R.D. Permit No. C-94-082

Previous Mine Names _____

LOCATION INFORMATION

County Routt

Permit Location (Sec., T., R.,) Sec. 5,8,16-20, 29,30, T. 5 N. R. 87 W.; Sec. 28,29,32, T. 6 N., R. 87 W.

Coal Region Green River Field Yampa

Topographic Quadrangle Dunckley, Mt. Harris

COMPANY INFORMATION

Mine Operator Seneca Coal Company

Address P.O. Box Drawer D, Hayden, CO 81639

Contacts G. Brad Brown Telephone (970) 276-3707

Parent Company Peabody Western Coal Company

Address 1300 South Yale, Flagstaff, AZ 86001

Contacts Gary L. Melvin Telephone (520) 774-5253

GENERAL INFORMATION

Mine Type Surface Mining Method Dragline

Mine Status Producing in 1996 Start-Up Date 1996

No. of Employees See Seneca II Union Affiliation UMWA

No. of Acres in Permit 2,318.3

Surface: Federal X State X Private X

Mineral: Federal X State _____ Private X

GEOLOGIC INFORMATION

Geologic Unit Lower Williams Fork Formation Geologic Age Late Creteacous

Coal Zone(s) or Bed(s) Wadge, Wolf Creek

Coal Thickness(es) Wadge—9.3-14.2 ft, avg 12.2 ft; Wolf Creek—15.8-16.7 ft, avg 16.0 ft

Cleat Orientation and Spacing _____

Dip of Bedding 8-20° Strike of Bedding _____

Overburden Thickness(es) Wadge—average 55.0 ft, Wolf Creek—average 76.0 ft, range 0-120 ft

Interburden Thickness _____

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>Wadge</i>	<i>Wolf Creek</i>		
Rank				
Moisture (%)	12.66	12.42		
Ash (%)	7.62	13.21		
Fixed Carbon (%)				
Volatile Matter (%)				
Sulfur (%)	0.50	0.54		
Heating Value (Btu/lb.)	12,426	11,645		
Free Swelling Index				
Hardgrove Grindability				
Ash-Softening Temperature (°F)				
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production _____ 1996 Production _____

Cumulative Production Through 1996 _____

Projected Production (tpy) 1997 *See Seneca II*

Remaining Reserves/Life of Mine *10 years*

Shifts Per Day *2—8 hrs*

Production Per Shift *See Seneca II*

Equipment *Draglines, overburden drills, coal drills, loaders, haul trucks*

Haulage _____

Preparation Plant _____ Tipple _____

SALES DATA

Percent In-State *100* Destination *Hayden Power Plant* Use *Steam*

Percent Out-of-State _____ Destination _____ Use _____

Percent Export _____ Destination _____ Use _____

Transportation Mode/Mixed Modes *Haulage trucks from mine to power plant*

ADDITIONAL INFORMATION AND COMMENTS

Stripping of the first pit started in October 1996.

Geologic Map Reference: See Seneca II

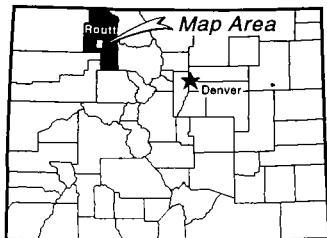
107°07'30"

R 87 W R 86 W

106°59'45"

R 86 W R 85 W

T 6 N
T 5 N



N

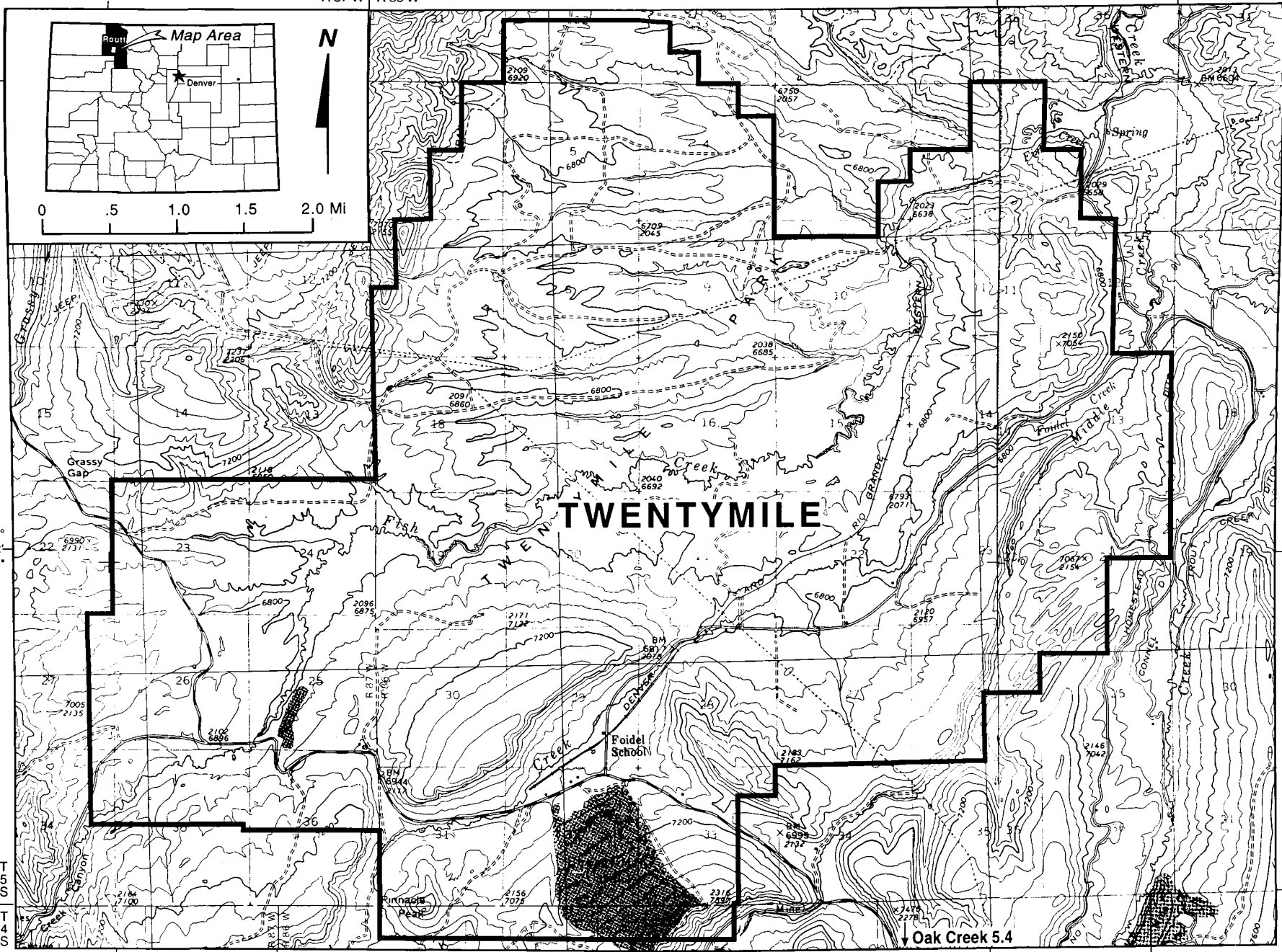
0 .5 1.0 1.5 2.0 Mi

53

40°
22'
30'

TWENTYMILE

T 5 S
T 4 S



↓ Oak Creek 5.4

TWENTYMILE MINE

Map No. 18 M.L.R.D. Permit No. C-82-056
Previous Mine Names Main, Foidel Creek

LOCATION INFORMATION

County Routt
Permit Location (Sec., T., R.,) Sec. 1-33, T. 5 N., R. 86 W.; Sec. 32,33, T. 6 N., R. 86 W., Secs. 23-27,34-36, T. 5 N., R. 87 W.; Sec. 7-9, T. 4 N., R. 86 W.
Coal Region Green River Field Yampa
Topographic Quadrangle Rattlesnake Butte, Milner

COMPANY INFORMATION

Mine Operator Cyprus Twentymile Coal Company
Address 29515 Routt County Rd No. 27, Oak Creek, CO 80457
Contacts Ron Spangler Telephone (970) 879-3800
Parent Company Cyprus Coal Company
Address 9100 E. Mineral Circle, Englewood, CO 80112
Contacts Garold R. Spindler Telephone (303) 643-5000

GENERAL INFORMATION

Mine Type Underground Mining Method Longwall/continuous miners
Mine Status Producing Start-Up Date April 1983
No. of Employees 306 Union Affiliation None
No. of Acres in Permit Approx. 22,000
Surface: Federal X State X Private X
Mineral: Federal X State X Private X

GEOLOGIC INFORMATION

Geologic Unit Williams Fork Formation Geologic Age Cretaceous
Coal Zone(s) or Bed(s) Wadge
Coal Thickness(es) 7-11 ft
Cleat Orientation and Spacing N 40° W.
Dip of Bedding 5-10°, max 15° Strike of Bedding N 25° E to N 50° W
Overburden Thickness(es) 500-1,700 ft, average 1,100 ft
Interburden Thickness N/A

COAL QUALITY

	Sample 1	Sample 2	Sample 3	Sample 4
Seam	<i>Wadge</i>	<i>Wadge</i>		
Rank	<i>Bit B</i>	<i>Bit C</i>		
Moisture (%)	9.0	10.30		
Ash (%)	7.1	9.8		
Fixed Carbon (%)	46.5	44.5		
Volatile Matter (%)	37.2	35.50		
Sulfur (%)	0.41	0.41		
Heating Value (Btu/lb.)	11,321	11,200		
Free Swelling Index				
Hardgrove Grindability				
Ash-Softening Temperature (°F)	2,700	2,515		
Methane Characteristics				
Reflectance Data				

COAL PRODUCTION

1995 Production	<i>5,846,803 tons</i>	1996 Production	<i>5,844,262 tons</i>
Cumulative Production Through 1996	<i>31,992,214 tons</i>		
Projected Production (tpy) 1997	<i>8,000,000 tons</i>		
Remaining Reserves/Life of Mine	<i>to year 2023</i>		
Shifts Per Day	<i>2—10 hrs</i>		
Production Per Shift	<i>14,000 tons</i>		
Equipment	<i>MTA shields, Anderson EL 3000 shearer, MTA face conveyor</i>		
Haulage			
Preparation Plant		Tipple	

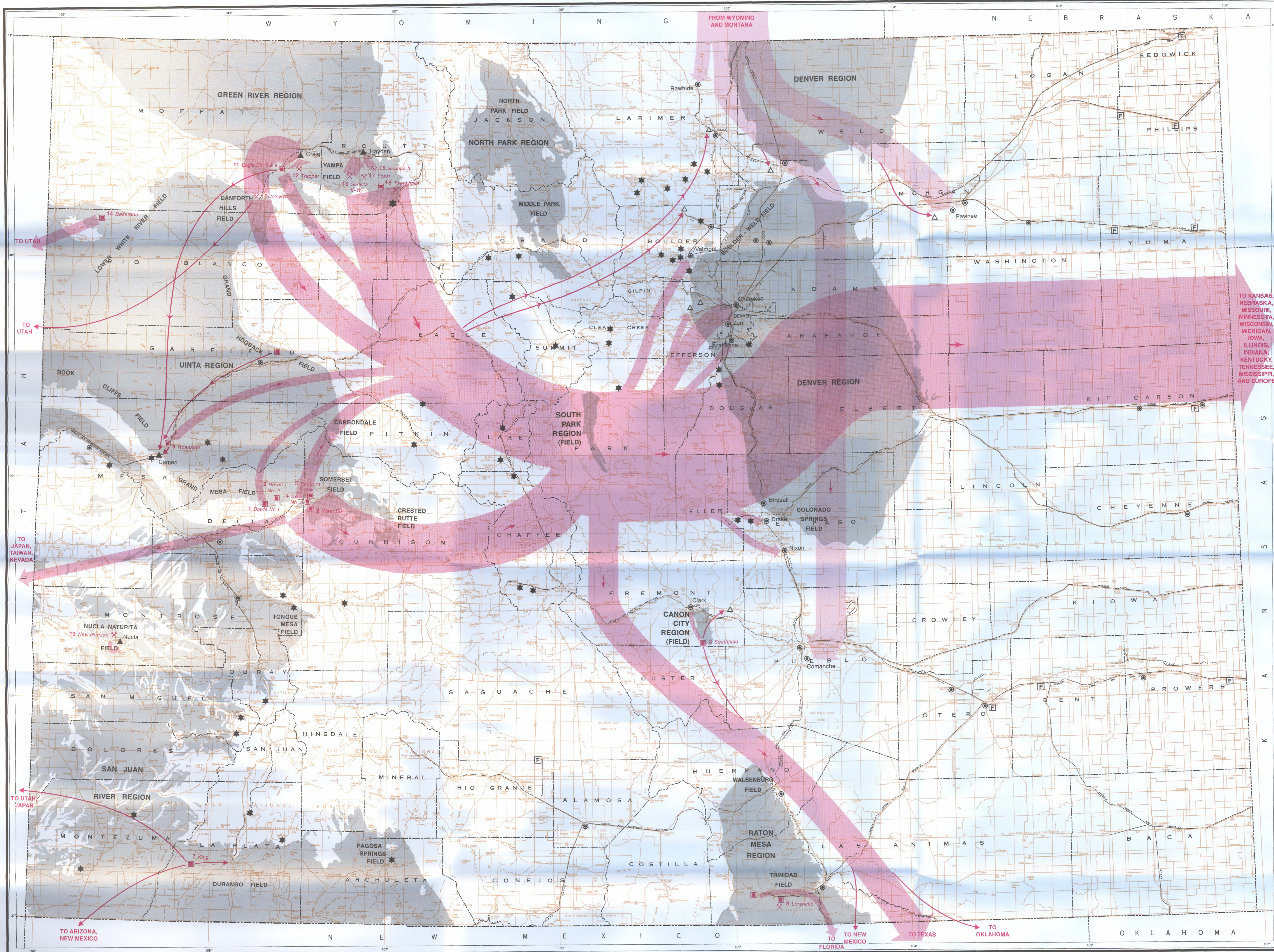
SALES DATA

Percent In-State	<i>25</i>	Destination	<i>Colo. Springs, Denver</i>	Use	<i>Steam</i>
Percent Out-of-State	<i>75</i>	Destination	<i>IL, IN, TX, MS, KS</i>	Use	<i>Steam, ind.</i>
Percent Export		Destination		Use	
Transportation Mode/Mixed Modes	<i>Union Pacific Railroad</i>				

ADDITIONAL INFORMATION AND COMMENTS

<i>This longwall mining operation went in from the highwall of the Energy No. 1 surface mine.</i>
<i>Geologic Map References: Tweto, Ogden, 1976 (see Seneca II); Dames & Moore, 1979, Coal Resource Occurrence and Coal Development Potential Maps of the Milner Quadrangle, Routt Co., Colo., scale 1:24,000; U.S.G.S. OF Report 79-815; Dames & Moore, 1979, Coal Resource Occurrence and Coal Development Potential Maps of the Rattlesnake Butte Quadrangle, Routt Co., Colo., 1:24,000; U.S.G.S. OF Report 1396</i>

By Jonathan M. Zook and Carol M. Tremain



Base from U.S. Geological Survey Edited by Wynn Eakins

Acknowledgments

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This map is a revision of Plate 1 of Resource Series 29 (1989) by Edwin A. Kuhn which was in turn a revision of Plate 1, Resource Series 26 (1983) by W.R. Taylor and L.R. Ladwig.

EXPLANATION

- DENVER REGION Approximate coal region boundary (included are fields)
- TRINIDAD FIELD Coal region name
- 10 Colorado Coal field name
- 18 Trapper Surface mine, number (if in directory), and name (see Coal Statistics Table)
- 10 Colorado Underground mine, number (if in directory), and name (see Coal Statistics Table)
- 18 Trapper Railroad
- Colorado coal movement direction (see graph)
- Imported coal movement direction (see graph)
- Birdsall Coal/oil/gas fired power plant (major ones labeled)
- Nucla Coal fired—mine mouth power plant
- * Hydroelectric power plant
- Standby (oil/gas) power plant
- △ Industrial plant

Coal Resources

The eight coal-bearing regions of Colorado encompass approximately 26,900 square miles, or 28 percent of the total area of Colorado. Over 434 billion tons of in-place coal resources within 6,000 feet of the ground surface are believed to remain in Colorado (Averitt, 1975, p. 14). Nearly 129 billion tons are within 3,000 feet of the surface. In terms of remaining identified bituminous coal resources, Colorado ranks second behind Illinois (Averitt, 1975, p. 22), but is first in terms of low-sulfur bituminous coal. The demonstrated reserve base of coal in Colorado on January 1, 1995 is estimated at 16.8 billion tons [DOE/EIA-0529(95)].

Colorado coals range in age from early Late Cretaceous to Eocene; ranks range from lignite to anthracite. Over 70 percent of Colorado's coal resources are bituminous, approximately 23 percent are subbituminous, five percent are lignite, and less than one percent is anthracite. Steam coal comprises nearly all current production in the state with the Green River and Uinta Coal Regions furnishing most of the total. In 1995, approximately half of Colorado's coal production of 25.9 million tons was burned in state and half shipped out of state. Another 5.7 million tons was imported from the Powder River Basin of Wyoming and burned in Colorado power plants. Approximately four percent of coal consumption was industrial, less than one percent was residential and commercial, and over 95 percent was used for electrical generation.

References

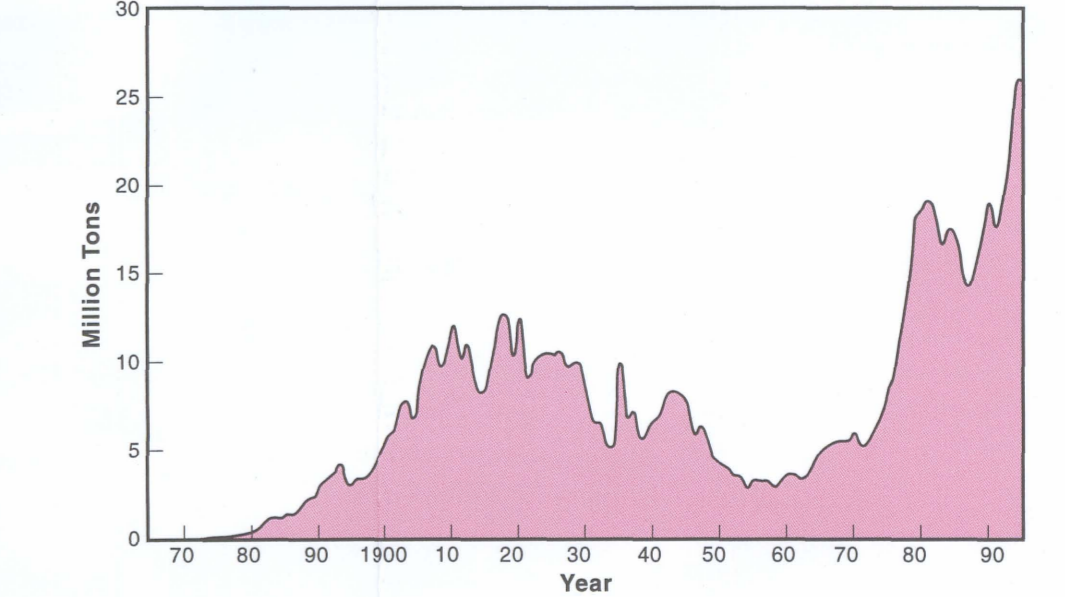
- Averitt, Paul, 1975, Coal resources of the United States, January 1, 1974: U.S. Geological Survey Bulletin 1412, 131 p.
- U.S. Department of Energy, 1995, Coal industry annual, 1995: DOE/EIA-0584(95), 258 p.
- U.S. Department of Energy, 1995, U.S. coal reserves: a review and update: DOE/EIA-0529(95), 105 p.

1995 Coal Statistics

County	Directory and Map No.	Mine	Shipped		Total* Production (Tons)
			In-State	Out-of-State	
Delta	1	Bowie No. 1	261,192	261,192	522,384
Delta	2	Bowie No. 2	—	—	start-up 1997
Fremont	3	Southfield	284,942	10,635	302,233
Garfield	**	Eastside	375	—	375
Gunnison	4	Bear No. 3	468,002	—	468,002
La Plata	5	Sanborn Creek	—	1,057,996	1,057,996
La Plata	6	West Elk	1,063,730	3,597,055	5,318,650
La Plata	7	King Coal	10,784	197,332	208,642
Las Animas	**	Golden Eagle	—	873,043	1,519,174
Mesa	8	Lorencito	—	—	start-up 1997
Mesa	9	Roadside	194,391	377,000	599,064
Moffat	10	Colowyo	3,000,509	1,424,722	4,395,865
Moffat	11	Eagle No. 5 & 8	700,370	44,704	745,074
Moffat	12	Trapper	2,024,186	—	2,024,186
Montrose	13	New Horizon	374,266	—	374,266
Rio Blanco	14	Deserado	—	760,255	760,255
Routt	**	Edna	24,088	—	24,088
Routt	15	Seneca II	738,424	—	738,424
Routt	16	Seneca II-W	1,005,358	—	1,005,358
Routt	17	Yoast	—	—	start-up 1996
Routt	18	Twentymile	4,385,102	1,461,701	5,846,803
Total			14,535,719	10,065,635	25,900,839

* Total production may differ from amount shipped due to stockpile inventory.
** Mine closed in 1995. Not in Directory, but location shown on map.
Sources: Colorado Division of Minerals and Geology and coal-mine operators.

Colorado Coal Production 1864-1995



1995 Industrial Coal Consumption

Major Consumer	Tons	Mine, State
Coors Energy Company Golden, Colorado	380,000	Bowie Mine No. 1, Colorado
Holman, Inc. Portland, Colorado	185,000	Southfield Mine, Colorado
Fort Collins, Colorado	28,505	Sanborn Creek Mine, Colorado
Subtotal	213,505	
Southdown, Inc., Lyons Cement Plant Lyons, Colorado	72,097	West Elk Mine, Colorado
Western Sugar Company Fort Morgan, Colorado	44,509	Spring Creek Mine, Montana
Greeley, Colorado	32,452	Spring Creek Mine, Montana
Subtotal	77,361	
Western Paving Denver, Colorado	376	Sufco Mine, Utah
Imports	77,737	
In-state	665,602	
Total	743,339	

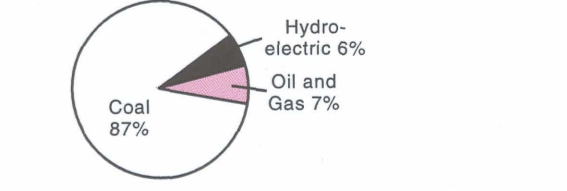
Electrical Generation

In 1995, over 35 billion kilowatt hours (kWh) of electricity were produced within the state. (This number represents net generation.) Of this, an estimated 30 billion kWh was produced by coal-fired steam generation plants, 2 billion kWh by hydroelectric plants, and the remainder principally by oil and/or gas in major coal-fired plants and assorted gas- and oil-fired plants. Coal is the predominant fuel burned in steam electric generation plants (95 percent of total generation). Approximately 68 percent of this coal was mined in-state while 32 percent came from other states, principally Wyoming [DOE/EIA-0584(95)]. The construction of large coal-fired plants during the 1950s through the mid 1980s caused numerous small city-owned generation facilities, mainly located throughout eastern Colorado, to be shut down or placed on standby. However, several hydroelectric turbine and cogeneration units have been put into operation in the 1990s.

1995 Major Electric Utility Coal Consumption (Tons)

Imports	5,653,912
In-State	11,232,790
Total	16,886,702

1995 Electrical Output by Energy Source



1995 Major Steam Electric Generation and Consumption

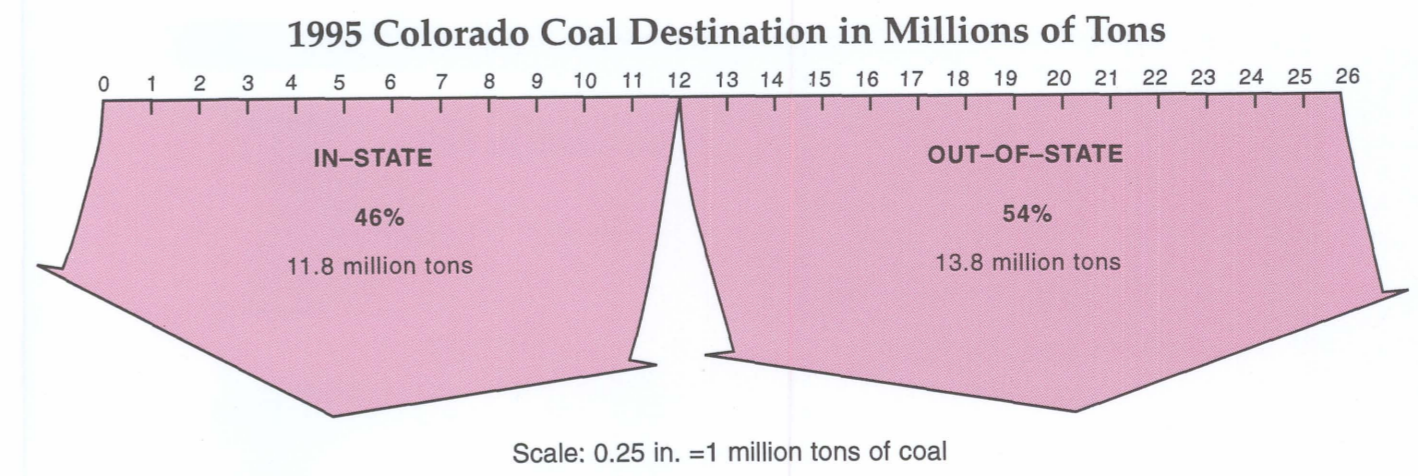
Nameplate Rating (MW)	Net Generation (kWh x 1000)	Fuel Consumed		
		Coal (Tons)	Gas (MCF)	Oil (BBL)
Bonneville Pacific				
Brush Cogeneration	118	345,381	—	Not available
Rifle Cogeneration	83	134,847	—	Not available
Subtotal	201	480,228		
City of Colorado Springs				
George Birdsall	63	2,842	70,713	42,088
Marin Drake	282	1,326,076	699,226	59,914
Ray D. Nixon	207	1,468,479	707,587	172,167
Subtotal	552	2,817,397	1,406,813	214,255
City of Delta	5	1,205	15,275	—
City of Lamar	30	87,712	1,120,000	—
Platte River Power Authority				
Rawhide	285	1,746,095	1,048,000	—
Public Service Co. of Colorado				
Alamosa	33	532	19,628	—
Arapahoe	232	953,068	504,247	107,277
Cameo	66	443,941	249,052	37,864
Cherokee	710	3,539,614	1,628,060	732,705
Comanche	700	4,023,033	2,412,074	122,438
Fort Lupton	78	2,724	643,676	—
Fruita	19	187	4,734	—
Hayden (JO)	446	3,504,706	1,727,000	7,929
Pawnee	500	3,479,430	2,183,838	174,933
Valmont	166	1,104,094	510,893	15,589
Zuni	101	8136	147,026	6,943
Subtotal	3,051	17,059,465	9,225,164	1,413,699
ThermoCogeneration Partnership				
Fort Lupton	272	1,187,976	9,237,000	—
Greeley	72	625,146	4,261,606	—
Subtotal	344	1,813,122	13,498,606	
Tri-State Generation & Transmission Association				
Craig	1,264	7,905,528	4,683,360	—
Nuclea	114	683,997	375,450	—
Subtotal	1,378	8,589,525	5,058,810	
City of Trinidad	11	2,534	2,437	—
UtiliCorp United, Inc.				
Pueblo #6	15	50,460	884,927	—
W.N. Clark	39	245,348	145,478	—
Subtotal	54	295,808	145,478	884,927
Total	5,911	32,893,091	16,886,702	17,063,134

BBL - Barrels kWh - Kilowatt hour MCF - Thousand Cubic Feet JO - Jointly owned
Sources: Colorado Public Utilities Commission; DOE/EIA-0095(94) Inventory of Power Plants in the United States 1994, electric power producers.

1995 Hydro-Electric Power Generation

Owner	Plant	Nameplate Rating (mW)	kWh Generated (x 1000)
City of Aspen	Maroon Creek	0.45	1,322
	Ruedi Reservoir	5.00	20,340
Subtotal		5.45	21,662
City of Boulder	Baltasso	3.00	8,110
	Kohler	0.15	678
	Maxwell	0.68	462
	Orodell	0.22	582
	Sunshine	0.70	3,376
Subtotal		4.75	13,208
City of Colorado Springs	Manitou	5	15
	Flatiron	1	2
Subtotal		6	17
City of Denver	Dillon	1.8	11,543
	Foothills	3.1	7,780
	Hillcrest	2.0	10,285
	Roberts Tunnel	5.5	9,897
	Strontia Springs	1.0	6,382
	Williams Fork	3.0	12,789
Subtotal		16.4	58,466
Eric Jacobson	Bridal Veil Falls	0.5	1
	Ouray	0.5	3
Subtotal		1.0	4
City of Longmont	Longmont	0.6	4
City of Loveland	Idlewild	1	2
Ptarmigan Res. and Energy, Inc.	Vallecito	5	25,042
Public Service Co. of Colorado	Ames	3.6	17
	Boulder	20.0	15
	Cabin Creek	225.0	69
	Georgetown	1.4	6
	Palisade	3.2	19
	Selkirk	1.3	8
	Shoshone	15.1	11
	Tacoma	8.0	31
Subtotal		277.5	276
Redlands Water and Power Co.	Redlands	1.4	11,940
Bureau of Reclamation	Big Thompson	5	14,000
	Blue Mesa	96	352,000
	Crystal	28	163,000
	Estes	50	96,000
	Flat Iron	95	253,000
	Green Mountain	26	56,000
	Lower Molina	5	19,000
	Upper Molina	9	31,000
	May's Lake	8	42,000
	Morrow Point	156	517,000
	Mount Elbert	206	161,000
	Pole Hill	33	206,000
	Towaco	728	13,000
Subtotal		2.8	1,926,000
STS Hydropower, Ltd.	Sugarloaf	0.8	5,525
Upper Yampa Water Cons. Dist.	Stagecoach	0.8	4,648
Total		1,050.7	2,066,794

*Pumped storage
Sources: Colorado Public Utilities Commission; DOE/EIA-0095(94) Inventory of Power Plants in the United States, 1994, and hydroelectric power producers.



Scale: 0.25 in. = 1 million tons of coal