

Coal Section

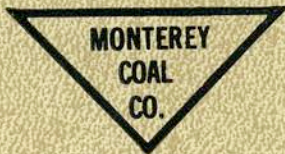
ISGS

10/22/92

MONTEREY COAL CO. 10/22/92

Monterey C.C.

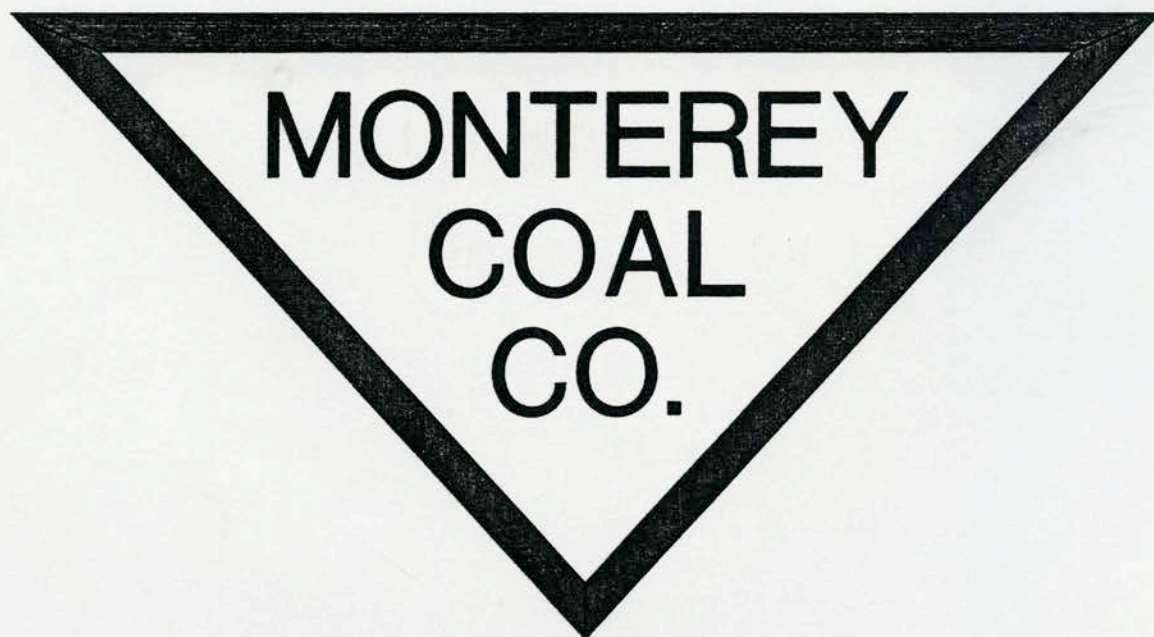
**Monterey Coal Company**  
**Carlinville, Illinois**



A division of EXXON COAL USA, INC.

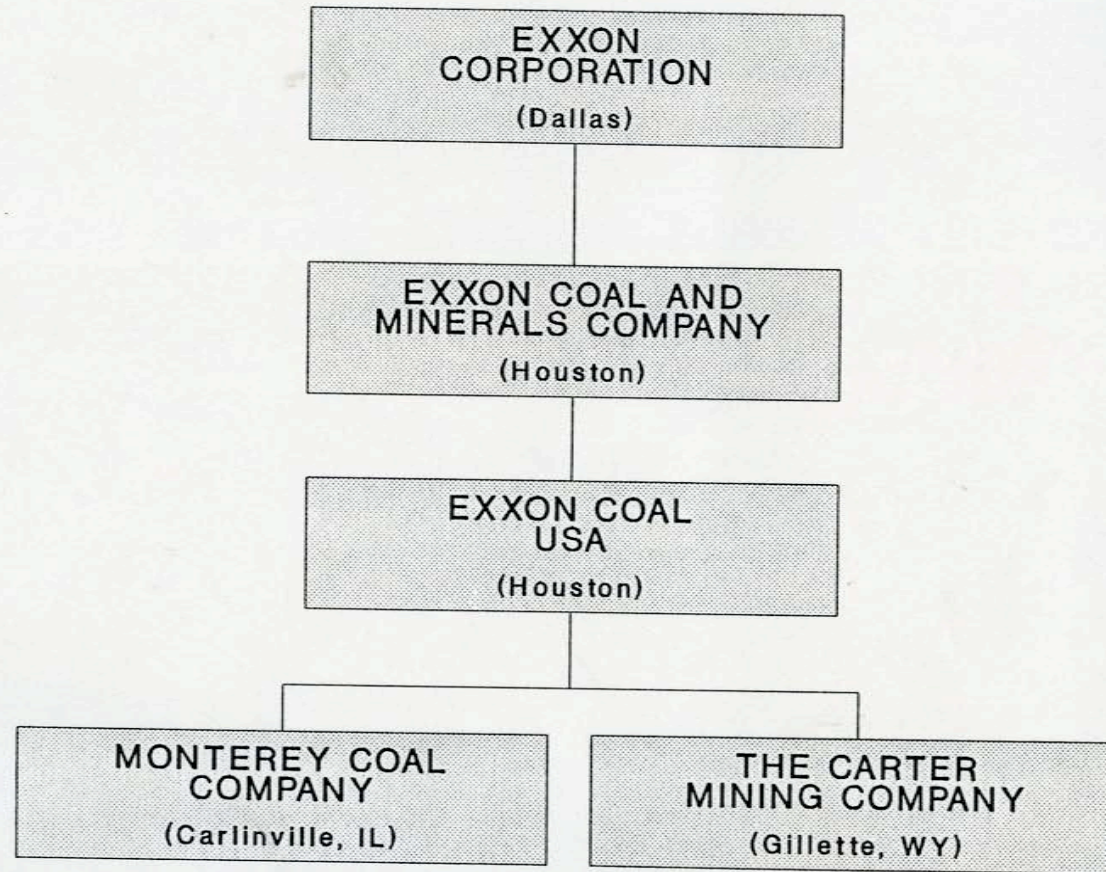


**Monterey Coal Company**  
**Carlinville, Illinois**



A division of EXXON COAL USA, INC.

# Exxon Coal and Minerals Organization Chart





MONTEREY COAL COMPANY

NO. 1 MINE

NO. 2 MINE

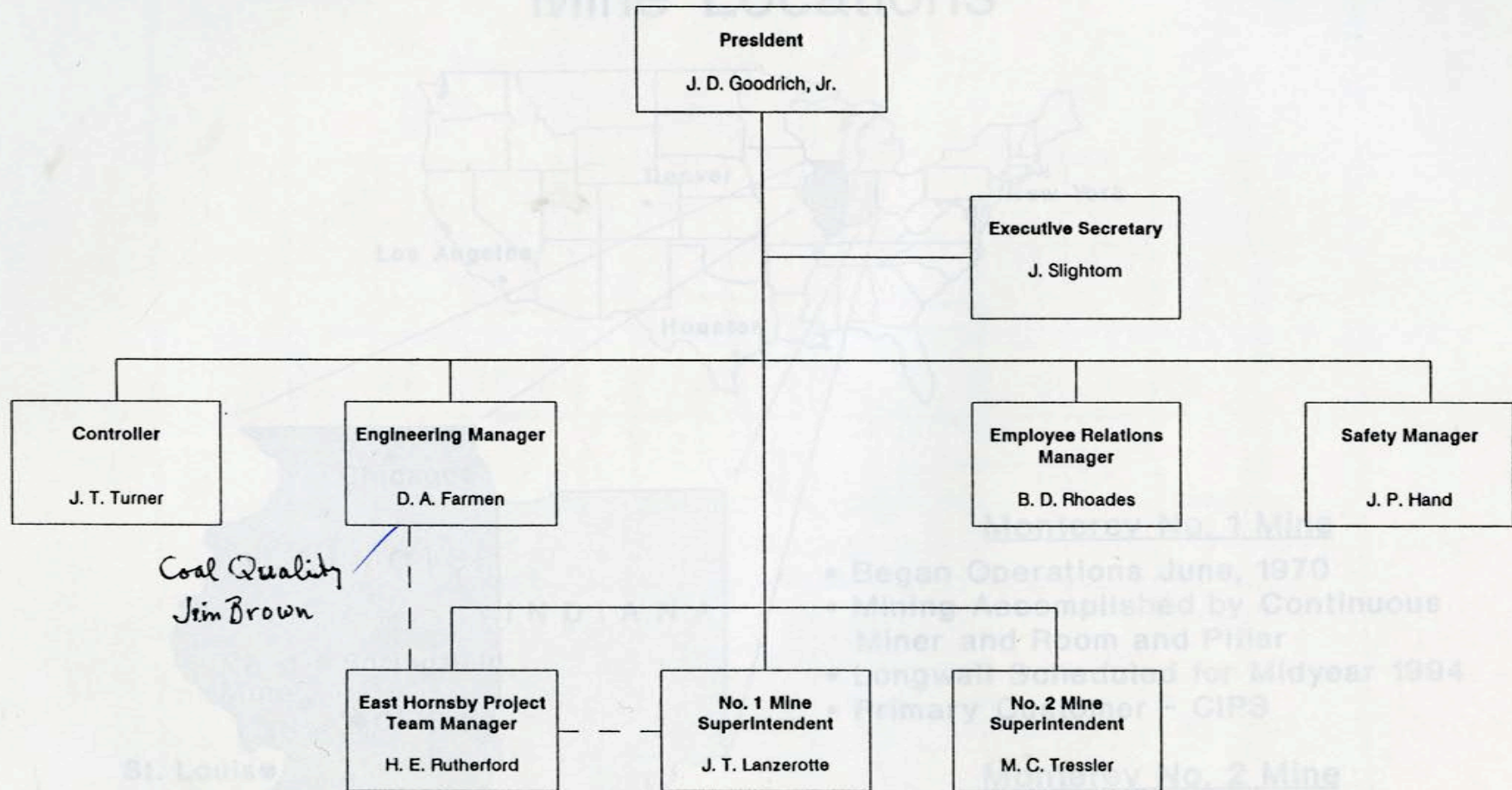




AUGUST 1989



# Monterey Coal Company





# Monterey Coal Company Mine Locations



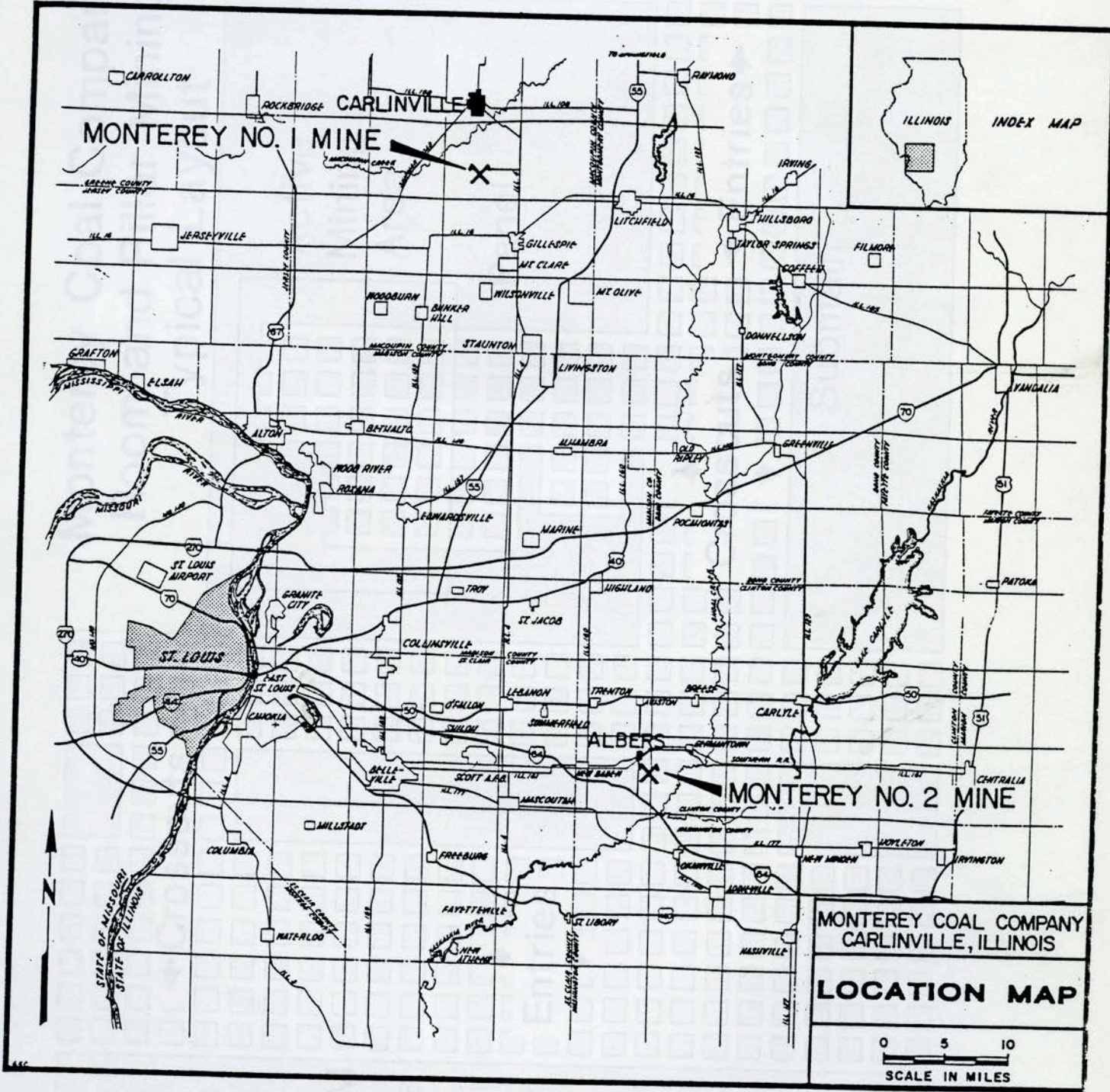
## Monterey No. 1 Mine

- Began Operations June, 1970
- Mining Accomplished by Continuous Miner and Room and Pillar
- Longwall Scheduled for Midyear 1994
- Primary Customer - CIPS

## Monterey No. 2 Mine

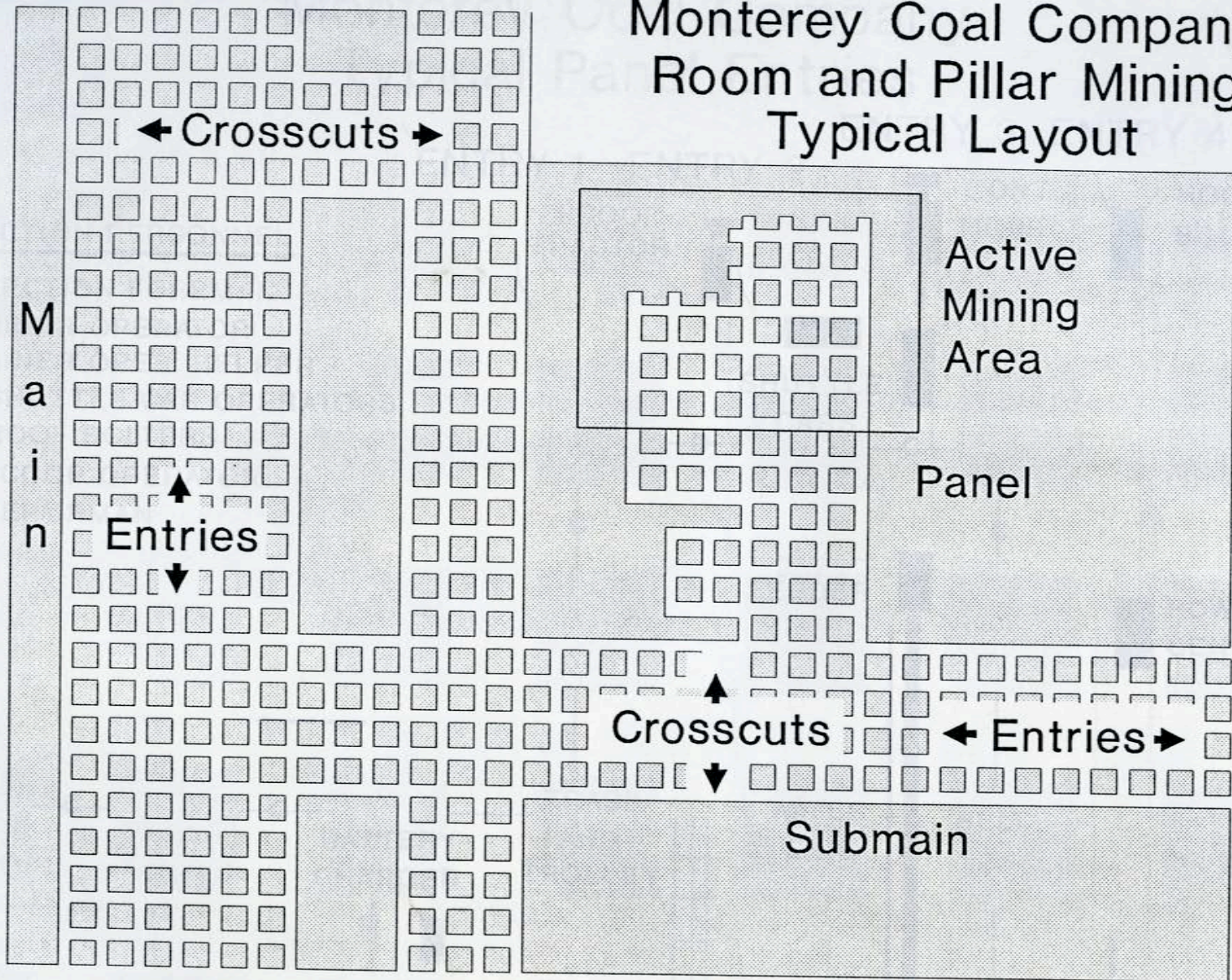
- Began Operations April, 1977
- Mining Accomplished by Continuous Miner and Room and Pillar
- Primary Customer - PSI







# Monterey Coal Company Room and Pillar Mining Typical Layout

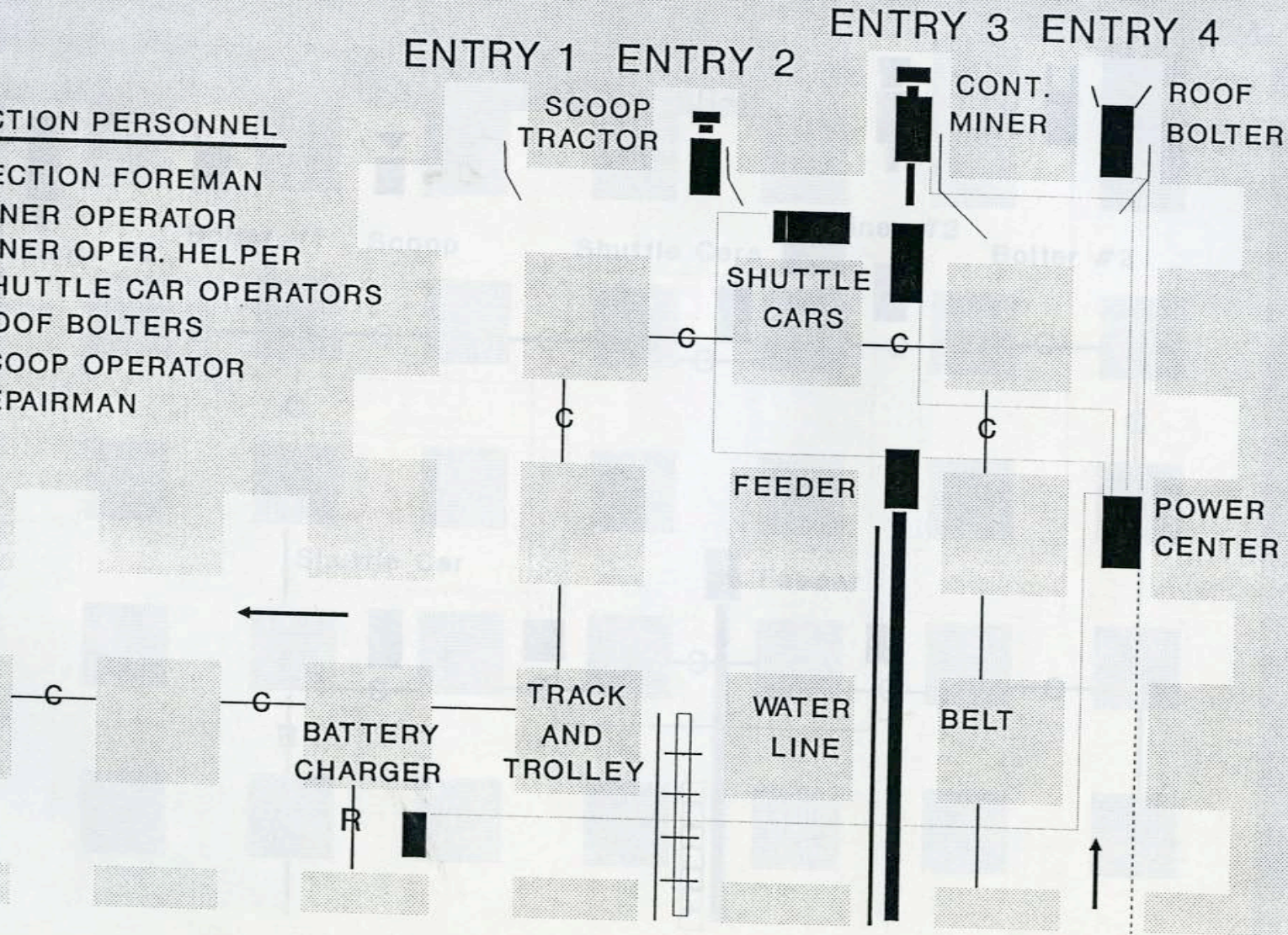




# Monterey Coal Company Typical Panel Entries

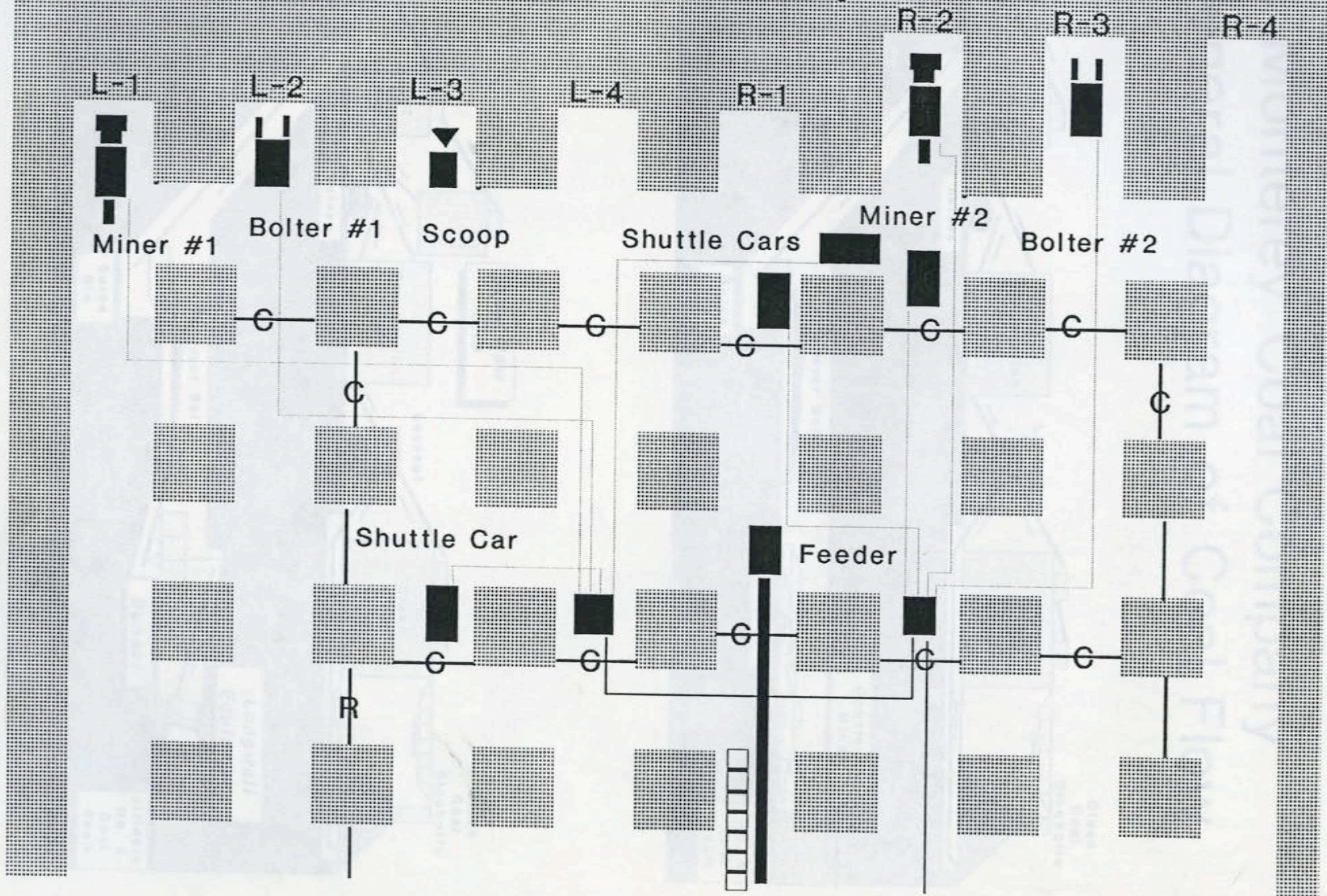
## SECTION PERSONNEL

- 1 SECTION FOREMAN
- 1 MINER OPERATOR
- 1 MINER OPER. HELPER
- 2 SHUTTLE CAR OPERATORS
- 2 ROOF BOLTERS
- 1 SCOOP OPERATOR
- 1 REPAIRMAN



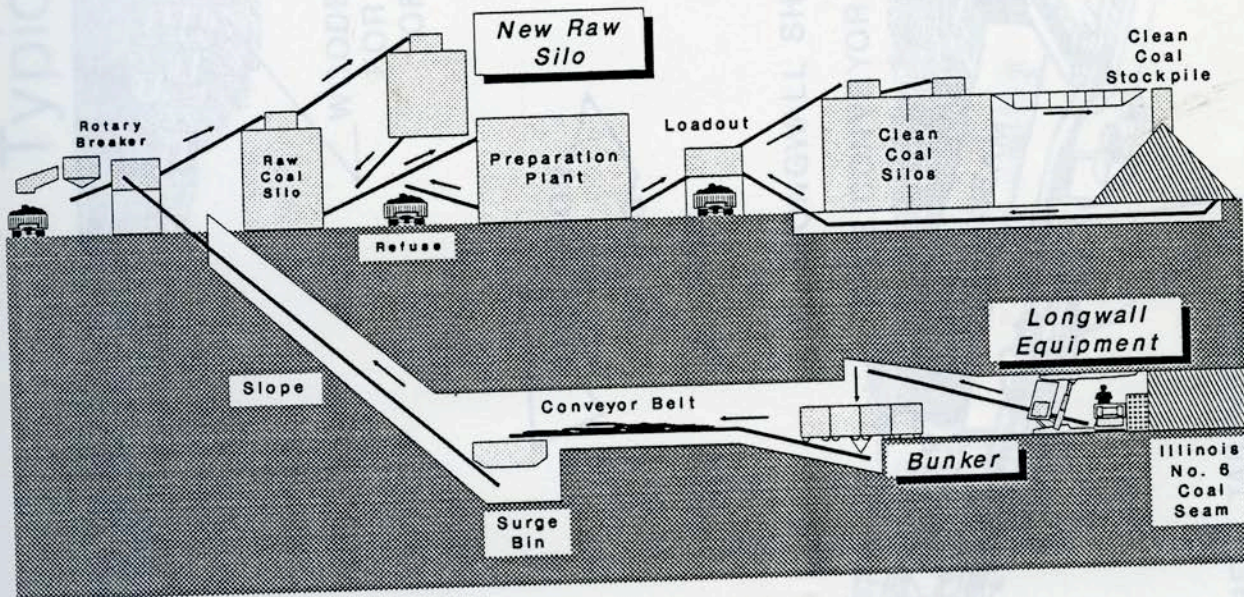
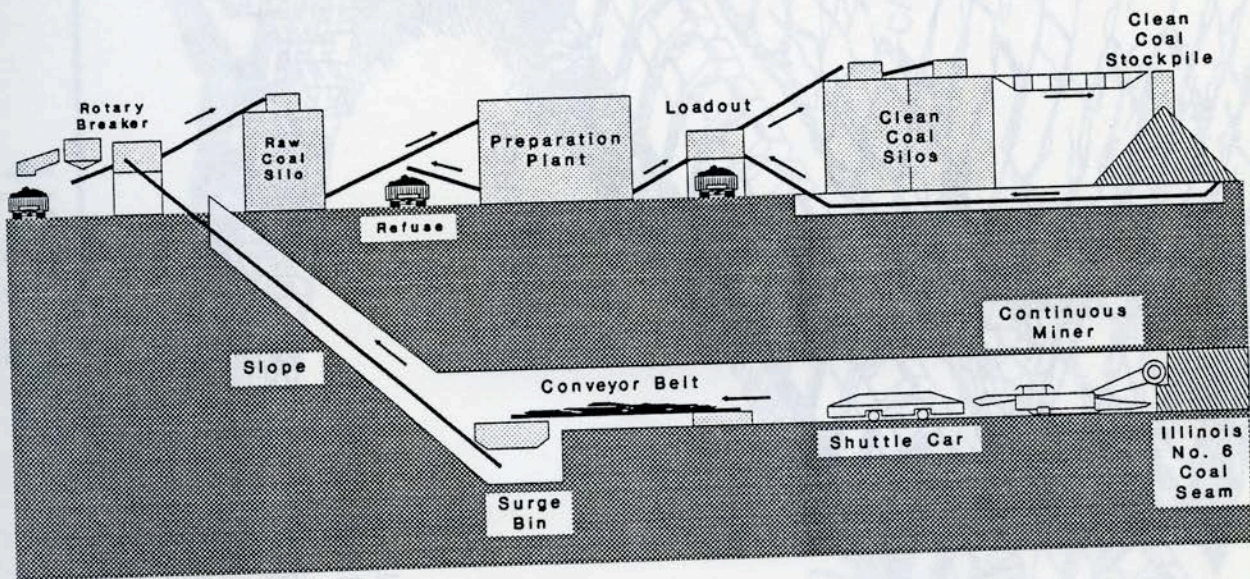


# Monterey Coal Company Supersection Layout





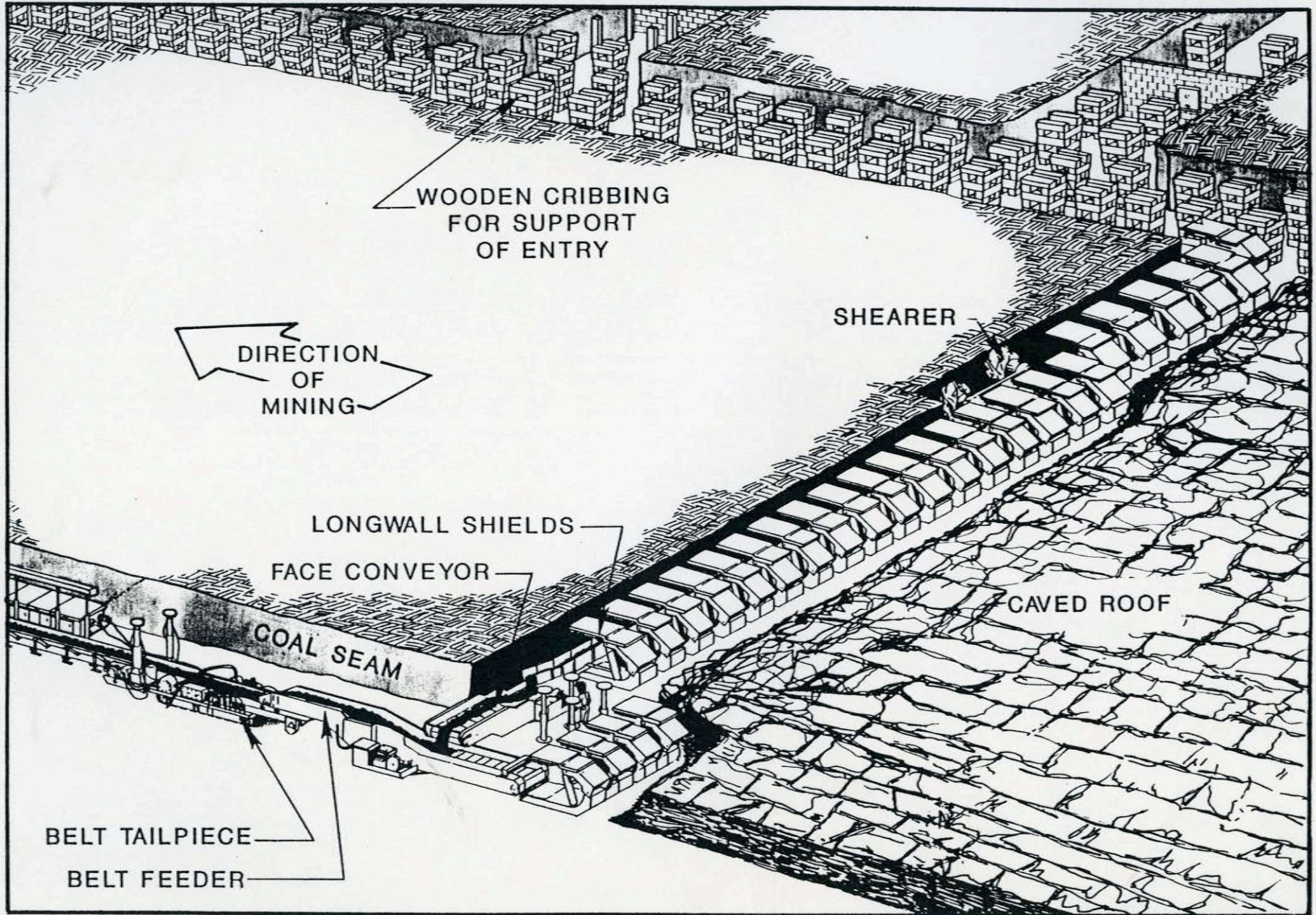
# Monterey Coal Company General Diagram of Coal Flow





No. 1 Mine

# East Hornsby Longwall Project Typical Longwall Unit



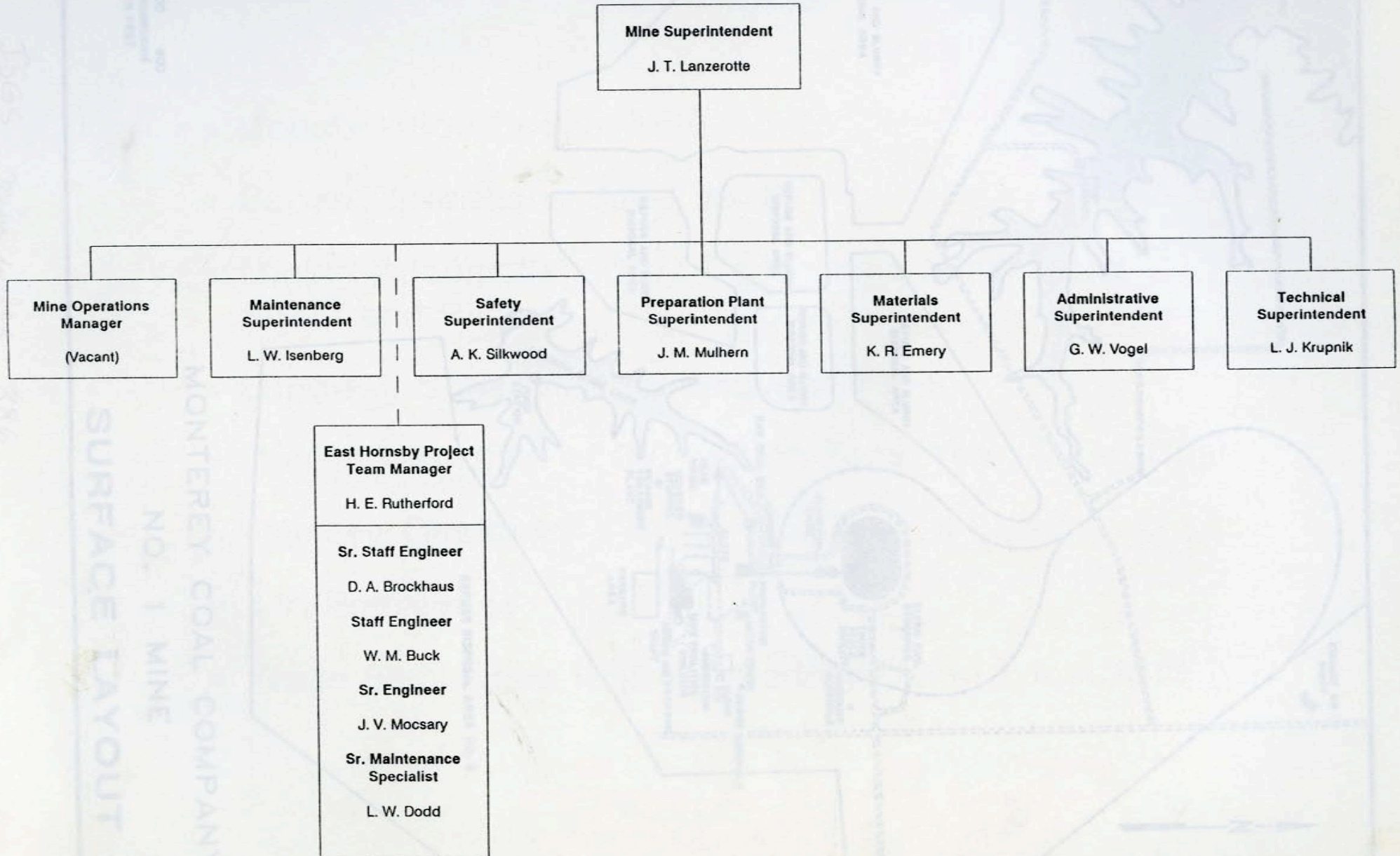


NO. 1 MINE

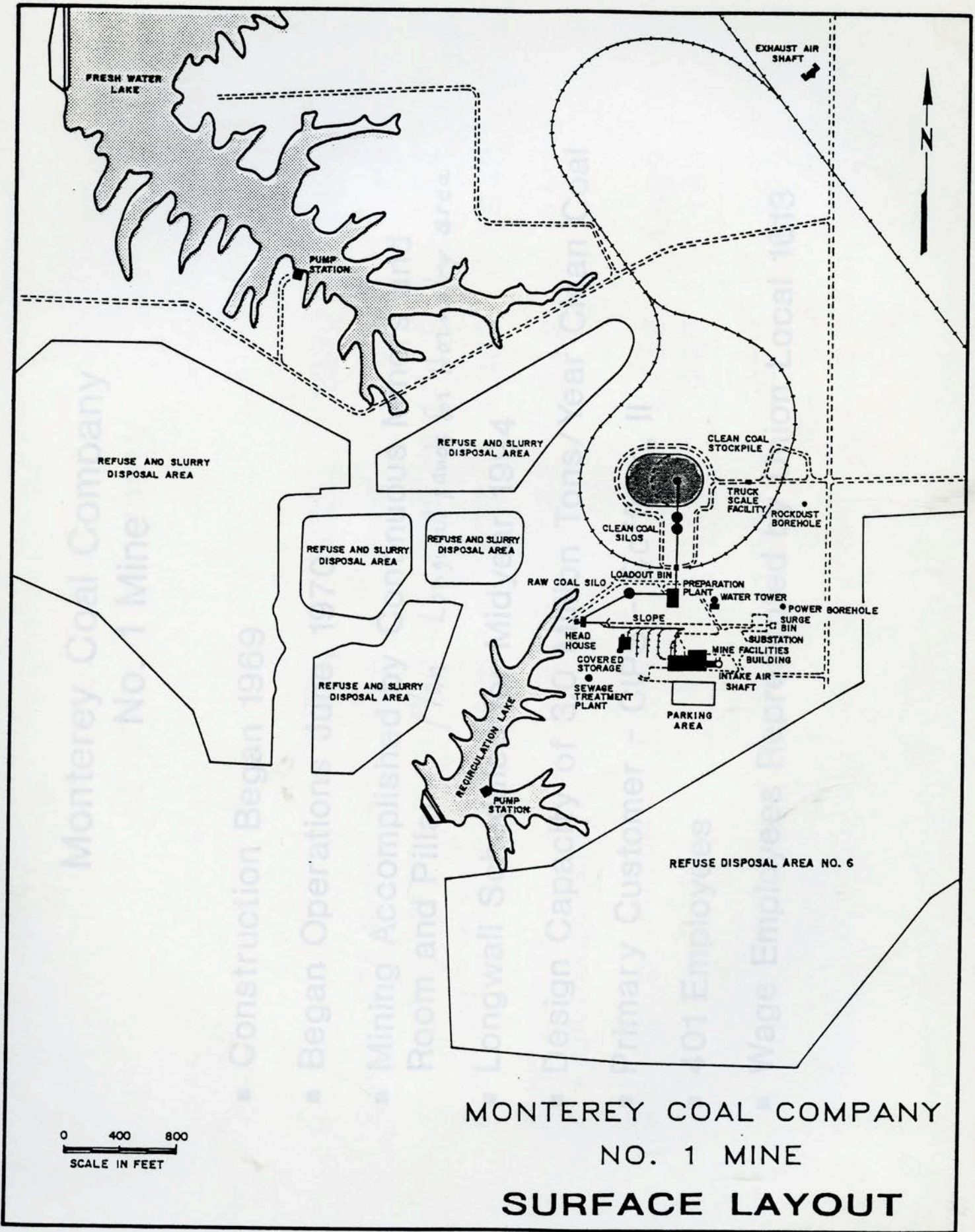
NO. 2 MINE



# Monterey Coal Company No. 1 Mine







MONTEREY COAL COMPANY  
 NO. 1 MINE  
 SURFACE LAYOUT

ISGS mine index 886



# Monterey Coal Company Oper No. 1 Mine

- Construction Began 1969
- Began Operations June, 1970
- Mining Accomplished by Continuous Miners and Room and Pillar *Plan Longwall panels for Hornsby area*
- Longwall Scheduled for Midyear 1994
- Design Capacity of 3.0 Million Tons/Year Clean Coal
- Primary Customer - CIPS - Coffeen, II
- 401 Employees
- Wage Employees Represented by Union Local 1613



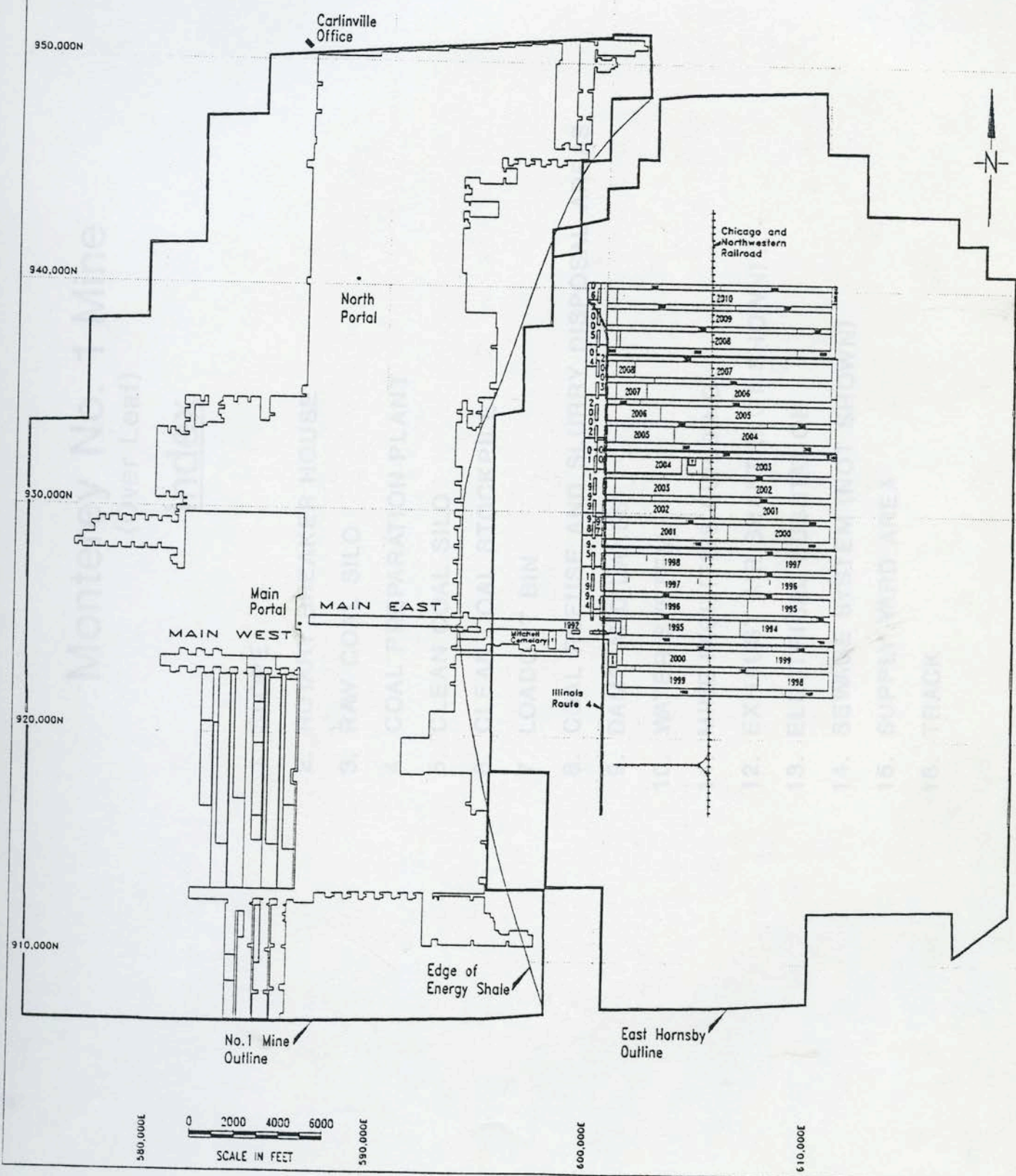
## No. 1 Mine Operating Summary

*in 1000, short tons*

	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
Safety LTA Freq.	22.6	22.9	9.3	7.9
Med Freq.	40.1	37.3	17.5	15.5
Production (kST)	1,728	1,827	1,982	1,943
Productivity (Tons/Man-Day)	17.9	19.4	23.9	21.7
Shipments - Term	1,711	1,686	1,746	1,699
- Spot	<u>41</u>	<u>281</u>	<u>225</u>	<u>168</u>
Total	1,752	1,967	1,972	1,867



# East Hornsby Longwall Project Longwall Mining Plan





# Monterey No. 1 Mine

(Over Leaf)

## Index

1. SLOPE
2. ROTARY BREAKER HOUSE
3. RAW COAL SILO
4. COAL PREPARATION PLANT
5. CLEAN COAL SILO
6. CLEAN COAL STOCKPILE
7. LOADOUT BIN
8. COAL REFUSE AND SLURRY DISPOSAL AREAS
9. DAMS AND LAKES
10. WATER SYSTEM
11. MINE FACILITIES BUILDING
12. EXHAUST AIR SHAFT (NOT SHOWN)
13. ELECTRICAL SUBSTATION
14. SEWAGE SYSTEM (NOT SHOWN)
15. SUPPLY YARD AREA
16. TRACK

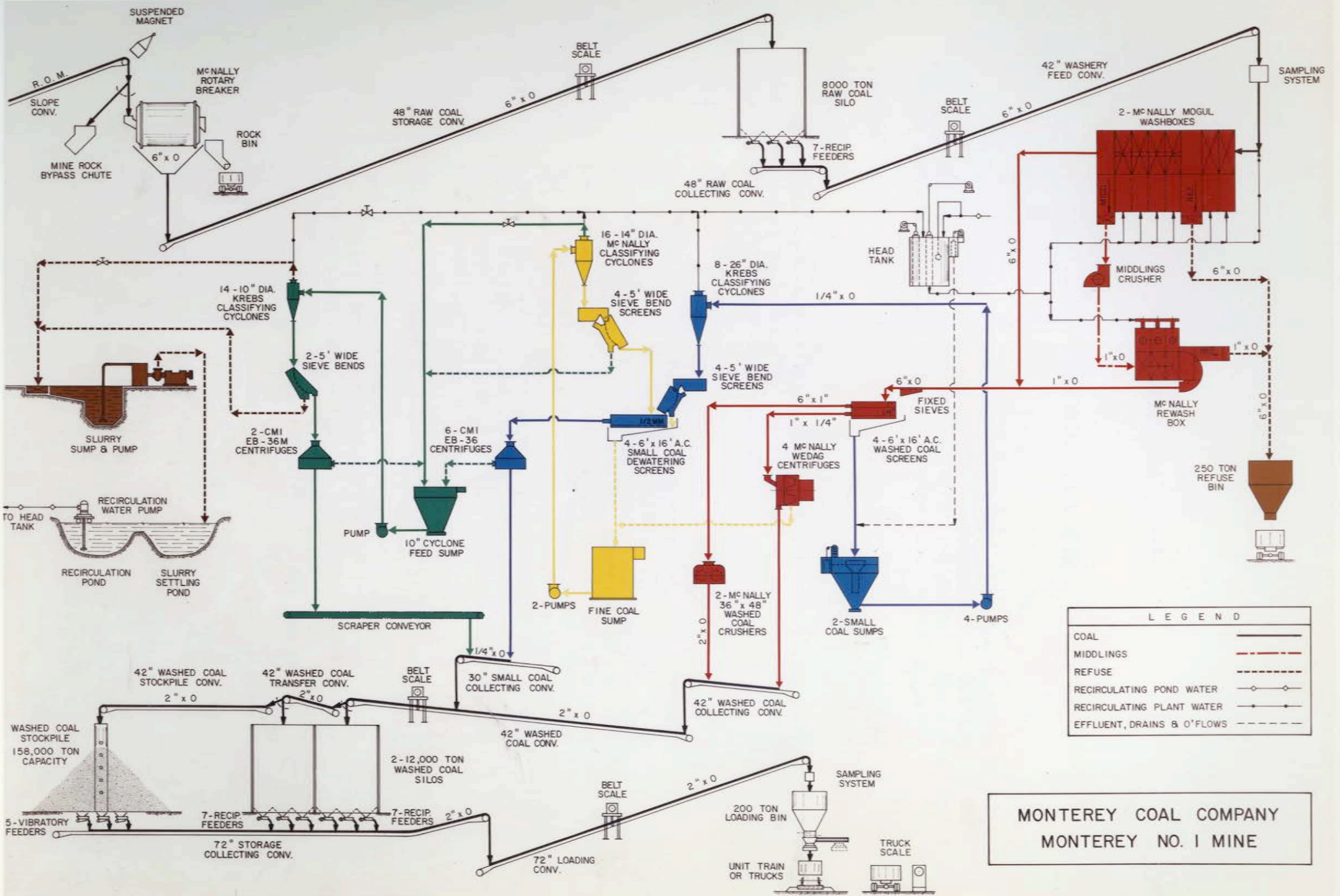


H. J. NEW 1989



AUGUST 1989





LEGEND

COAL	—
MIDDINGS	- - -
REFUSE	· · ·
RECIRCULATING POND WATER	○ — ○
RECIRCULATING PLANT WATER	● — ●
EFFLUENT, DRAINS & O'FLOWS	- - - - -

**MONTEREY COAL COMPANY**  
**MONTEREY NO. 1 MINE**



## MONTEREY COAL COMPANY

### NO. 1 MINE

### CARLINVILLE, ILLINOIS

The No. 1 Mine is located approximately 6 miles south of Carlinville, Illinois. This mine is an underground operation extracting the Illinois No. 6 coal seam using a room and pillar mining method. No. 1 Mine has a design capacity of 3.0 million tons of clean coal annually.

#### SURFACE FACILITIES

##### MAIN PORTAL

The major surface facilities at the No. 1 Mine are (for reference, the number preceding each facility described below corresponds to the number shown on the enclosed aerial photograph):

1. Slope

After the coal has been mined underground, it is brought to the surface through the Slope. The Slope is a concrete-lined tunnel constructed on a 17-degree incline from the coal seam to the surface 300 feet above. The Slope measures 13 feet wide by 16 feet high and contains two compartments. The upper compartment houses a 48-inch wide belt conveyor designed to carry raw coal at 1,800 tons per hour from the coal seam to the Rotary Breaker House, just beyond the slope portal. The lower compartment is used for transporting supplies into the mine by rail.

2. Rotary Breaker House

Coal produced underground is transported up the Slope to the Rotary Breaker House on a 48-inch wide belt conveyor. At the discharge of this conveyor, a suspended magnet removes "tramp" metal from the raw coal. The rotary breaker then reduces the raw coal to a maximum size of 6 inches and separates any remaining large rock from the coal. This facility is designed to handle 1,800 tons of raw coal per hour.

3. Raw Coal Silo

The Raw Coal Silo is used for storage of coal that moves from the Rotary Breaker House on a 48-inch wide belt conveyor. Raw coal is stored in the silo until it is



conveyed to the Coal Preparation Plant for cleaning. The reinforced concrete silo is 70 feet in diameter, stands 110 feet tall, and has a storage capacity of 8,000 tons.

4. Coal Preparation Plant

From the Raw Coal Silo, coal is transported to the Coal Preparation Plant on a 42-inch wide belt conveyor at a designed rate of 1,000 tons per hour. At the plant, the raw coal is processed in one of two 500 ton per hour cleaning circuits. The 7,360 square foot Coal Preparation Plant stands seven stories high. The plant contains extensive equipment for cleaning the coal and reducing its size to a maximum of 2 inches. Impurities are removed from the coal by an artificial gravity separation process with the combined use of water and air. Coarse refuse produced during cleaning is hauled by truck while fine refuse is pumped to a common Coal Refuse and Slurry Disposal Area. Process water is pumped to the plant from the Recirculation Lake and reused. The entire cleaning operation is controlled from a single control panel in the plant.

5. Clean Coal Silos

After the coal is prepared and impurities removed, it is transported to the Clean Coal Silos on a 42-inch wide belt conveyor having a designed capacity of 798 tons per hour. The two Clean Coal Silos are constructed of reinforced concrete and are 160 feet tall each with a diameter of 70 feet. The storage capacity of each silo is 12,000 tons.

2 x 12,000 = 24,000

6. Clean Coal Stockpile

Additional clean coal storage is provided by a 107,000 ton capacity stockpile with 51,000 tons additional emergency storage capacity. This facility consists of a vertical stacking tube located in the center of a 200 foot radius compacted clay stockpile base area. A 42-inch wide, 865 ton per hour capacity Belt Conveyor transports coal from the Clean Coal Silo feed belt to the stacking tube which regulates the piling of coal and minimizes production of dust. Stockpiled coal is pushed by dozers to several feeders underlying the stockpile. These feeders discharge coal onto a 72-inch wide, 3,500 ton per hour capacity reclaim belt located in a tunnel below the stockpile.

107,000  
51,000

---

182,000

≈ 10%  
annual  
production



7. Loadout Bin

Coal from the Clean Coal Silos or Clean Coal Stockpile is transported to the 200-ton Loadout Bin by a 72-inch wide belt conveyor. The 200-ton Loadout Bin discharges directly into railroad cars or trucks for transport to the customer, or onto a 42-inch wide belt conveyor having a design capacity of 1,000 tons per hour to recycle the coal back to the clean coal silos or stockpile. The loadout capacity is 3,500 tons per hour, controlled from a single panel.

8. Coal Refuse and Slurry Disposal Areas

Coarse refuse from the coal cleaning operation is collected in a 250-ton bin located in the Coal Preparation Plant, and then is transported, via 50-ton off-highway trucks, to a designated location within the Coal Refuse and Slurry Disposal Areas where it is dumped, spread, and compacted to form the outer dikes for Slurry Disposal Ponds. Fine refuse is pumped from the Coal Preparation Plant into the Slurry Disposal Ponds. Water, decanted from the slurry, is directed to the Recirculation Lake via an overflow network.

9. Dams and Lakes

The dam constructed to form the Fresh Water Lake is 725 feet long and impounds an 82-acre lake containing 450 million gallons of water. The Recirculation lake dam is 310 feet long, impounding a lake with a surface area of 13 acres and a volume of 58 million gallons. A pump station at the Fresh Water Lake, employing two 600 gallon per minute pumps, pumps water to the elevated Water Tower and Water Treatment Plant at the mine site. Another pump station at the Recirculation lake, with 3,000 gallons per minute pump capacity supplies water to the Coal Preparation Plant.

10. Water System

The focal point of the water system is the Water Treatment Plant, located at the base of a 190-foot high elevated water storage structure comprised of two tanks. The 60,000 gallon main head tank located at the top of the structure is used to store water for fire protection at the site and for underground usage. A 15,000 gallon potable water storage tank is located 120 feet up on the tower structure. The Water Treatment Plant is housed in a 720 square foot building which includes facilities to chlorinate water from the Fresh Water Lake and pump it up to the potable water tank from which point it is



distributed to the Mine Facilities Building and the Coal Preparation Plant. A separate building located west of the Raw Coal Silo contains facilities for injecting a dust suppressant into fresh water for use at the working face.

11. Mine Facilities Building

The Mine Facilities Building is a steel, pre-engineered structure which serves as the control center for mine operations. The most distinctive feature of the building is the tower housing the elevator that carries workers down the Intake Air Shaft to the coal seam 300 feet below. The concrete-lined Intake Air Shaft is 20 feet in diameter. Other features of the Mine Facilities Building are the following:

- A. A waiting area where the workers gather before going underground.
- B. Shower and change room facilities.
- C. An administrative section that can accommodate 45 persons.
- D. A Training section consisting of an Assembly Room for 60-90 persons and a smaller Training Room for 20-25 persons.
- E. A Nurses Station and a Mine Rescue Station.
- F. A Mine Operations Control Room, from which the mine operations are monitored.
- G. A Coal Quality Control Laboratory and a Mine Health and Safety Laboratory.
- H. A Warehouse of 7,500 square feet.
- I. A Shop of 5,500 square feet for maintenance of underground equipment.

The entire Mine Facilities Building comprises approximately 33,000 square feet.

12. Exhaust Air Shaft (not shown on photograph)

The Exhaust Air Shaft is 20 feet in diameter and extends to the coal seam 330 feet below the surface. At the surface opening of the shaft is a fan house containing two electrically-driven mine ventilation fans. Each fan is driven by a 400 HP motor and is capable of moving 300,000 cubic feet of air per minute.

13. Electrical Substation

Electric power for the No. 1 Mine is provided by Illinois Power Company at 34,500 volts to a Substation located on the site. Included within the Substation are two 5,000 KVA transformers with associated high voltage fuses,



arrestors and disconnect switches as well as low voltage metal clad switchgear, grounding resistors, etc. . . . . Power is distributed from the Substation at 4,160 volts to the various surface facilities. Power is also supplied underground at 13,800 volts via a borehole located near the Substation.

14. Sewage System (not shown on photograph)

The Sewage Treatment Plant is capable of treating 25,000 gallons per day of domestic sewage and shower water from the Mine Facilities Building. The sewage is treated by contact stabilization; then the effluent is chlorinated and discharged into the Recirculation Lake.

15. Supply Yard Area

The Supply Yard Area consists of 8,000 square feet of covered storage in two buildings and a large open storage area that is linked to the Mine Facilities Building Shop and the Slope by a track system. Included in the yard area is a concrete ramp for loading and unloading mining machinery from trucks.

16. Track

To transport clean coal to the customer, approximately 8,800 feet of 56-1/2-inch gauge track has been laid, utilizing rail weighing 133 pounds per yard. This track connects to a line owned by Chicago & Northwestern Railroad immediately north of the mine property. Unit trains passing under the Loadout Bin are loaded in a continuously-moving process. Weight of coal shipped is determined by belt scales which are accurate within 0.25%.

NORTH PORTAL

The North Portal of the No. 1 Mine is located on a 40-acre plot approximately 3 miles north of the Main Portal. Currently, operations at this facility have ceased.



## UNDERGROUND OPERATIONS

Major features of the underground operation are:

### 1. Geology

The Illinois No. 6 coal seam, within the block outline, lies approximately 300 feet below the surface. The seam averages 87 inches in thickness. The immediate roof above the seam is shale which varies in thickness from 4 to 36 inches. The main roof support member, which lies above the shale, is the Brereton Limestone which averages 7 feet thick. The floor below the coal seam is clay.

Recoverable high sulfur coal reserves are calculated in excess of 50 million tons. At the current design capacity of 3.0 million tons per year, the anticipated remaining mine life is over 17 years. No. 1 Mine is currently operating at approximately 70% of design capacity. Also, the No. 1 Mine is currently developing its lower sulfur East Hornsby reserves. At the projected mining rate of 2.5 MST per year, these reserves could support more than 30 years of mining.

### 2. Mining Plan

The mining plan consists of a room and pillar method of mining utilizing main, submain, and panel entries with rooms driven off the panel entries. Pillars are not extracted.

Main entries are developed from the main portal in the north and south directions. Each main consists of 10 or 11 entries grouped into two sets. One set consists of four intake air entries and two or three neutral air entries. The neutral air entries contain a belt conveyor system and a track system. The remaining set of four entries contain return air. The two sets of entries are separated by a barrier pillar. Main entries are mined 15.5 feet wide.

From the mains, submain entries are developed in the east and west directions. They consist of five to eight entries depending on their length and the number of panels anticipated to be mined from them. Similar to main entries, submains also contain intake and return air entries as well as neutral air entries containing a belt conveyor and a track system. Submain entries are mined 15.5 or 20 feet wide.



Panel entries are typically developed from and perpendicular to the submains. Panel entries and rooms are mined 24 feet wide. Each panel is isolated from other panels and is sealed after mining is completed in that panel.

Coal is extracted from the working face by continuous miners and is transported to the belt conveyor system by shuttle cars.

### 3. Mining Support Systems

A. A belt conveyor system is utilized to transport raw coal from the mine. In main entries, the system consists of 54-inch and 48-inch wide conveyors. These conveyors have the structure supported by a rigid frame which is suspended from the roof. In submains, the conveyors can be 42 or 48 inches wide. The 48-inch wide submain conveyors are supported by a rigid frame from the roof similar to the mainline 48-inch conveyors. The 42-inch wide conveyors have the structure supported by a wire rope frame which is also suspended from the roof. In panels, the conveyors are 36 inches wide and are supported by wire rope supported by a floor-mounted frame. All conveyors are equipped with hydraulic take-ups to adjust belt tension. The maximum length of any conveyor segment is approximately 5000 feet.

B. Track System - A track system is utilized for transportation of the men, equipment and supplies into the mine. The track system is constructed of 60-pound per yard rail laid on iron-clad ties with a 42-inch track gauge. The mobile track equipment receives power from a 250-volt DC trolley wire system. East Hornsby operations will be trackless, and diesel powered units will transport men and materials.

C. Ventilation System - Air is continually circulated throughout the mine by means of a single split ventilation system. Each mining area is supplied with an individual split of fresh air by means of the intake air shaft and intake air entries. After crossing a working face, the air



is directed through the return air entries and the exhaust shaft to the surface. In addition, a neutral air supply enters the mine through the lower compartment of the slope. This fresh air is used in the neutral air entries, is isolated from the intake air and working face, and is directed to the return air entries and the exhaust shaft to the surface.

- D. Power System - Power is supplied underground at 13,800 volts via a borehole located near the substation. Power is distributed underground at 13,800 volts to the working faces. The power is then transformed to 1000 & 550 volts AC and 250 volts DC for distribution to the mining equipment.
- E. Water - Water for dust suppression and fire-fighting is introduced into the mine through an 8-inch pipe line in the slope. Water is then distributed to units underground by 6, 4 and 3-1/2 inch lines to each working face.

4. Mining Equipment

Equipment in a super section consists of the following:

- Two Continuous Miner (AC)
- Three Shuttle Cars (DC)
- Two Roof Bolter, dual boom (AC)
- One Belt Feeder (AC)
- Two Scoop Tractor (Battery)
- One Power Center, 1,000 KVA

Supersections, which combine two continuous miners in a single operating area to obtain improved operating efficiencies were instituted at the No. 1 Mine during 1990.

5. Mining Personnel

At current design capacity, 8 mining crew shifts (unit shifts) are worked each operating day. Each super mining section crew consists of the following personnel:

- One Section Foreman
- One Continuous Mining Machine Operator
- One Continuous Mining Machine Operator Helper
- Three Shuttle Car Operators
- Four Roof Bolters
- One Scoop Tractor Operator
- One Section Repairman



The total personnel requirement, both Salaried and Wage, for staffing the mine at current operating capacity is 395, which consists of the mining crews, construction, maintenance, preparation, engineering, administrative, and supervisory personnel.

May 3, 1991

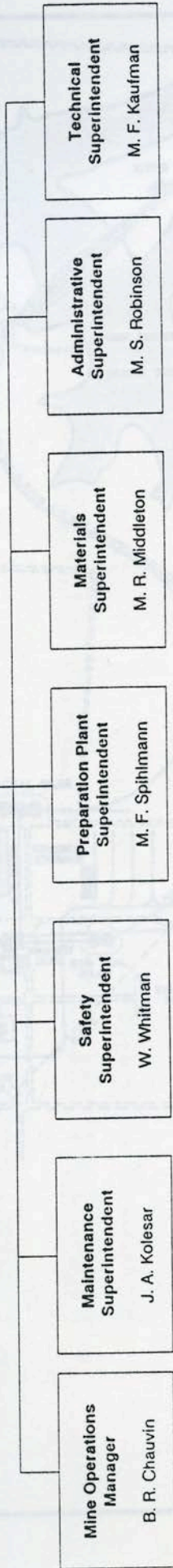


NO. 2 MINE



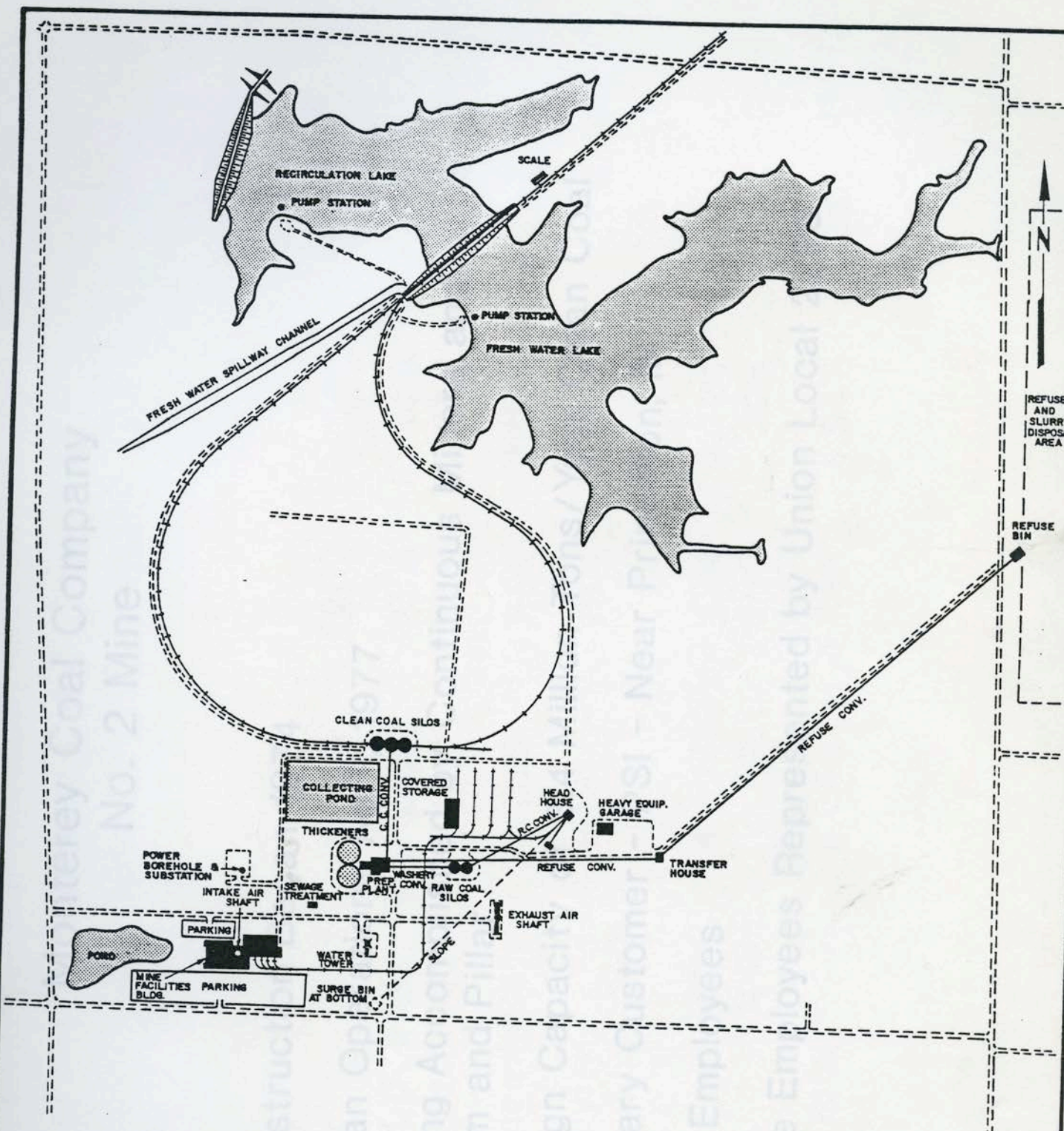
# Monterey Coal Company No. 2 Mine

Mine Superintendent  
M. C. Tressler



MONTEREY COAL COMPANY  
NO. 2 MINE  
SURFACE LAYOUT





0 800  
SCALE IN FEET

MONTEREY COAL COMPANY  
NO. 2 MINE  
**SURFACE LAYOUT**



# Monterey Coal Company No. 2 Mine

- Construction Began 1974
- Began Operations April, 1977
- Mining Accomplished by Continuous Miners and Room and Pillar
- Design Capacity of 3.4 Million Tons/Year Clean Coal
- Primary Customer - PSI - Near Princeton, IN
- 450 Employees
- Wage Employees Represented by Union Local 2295



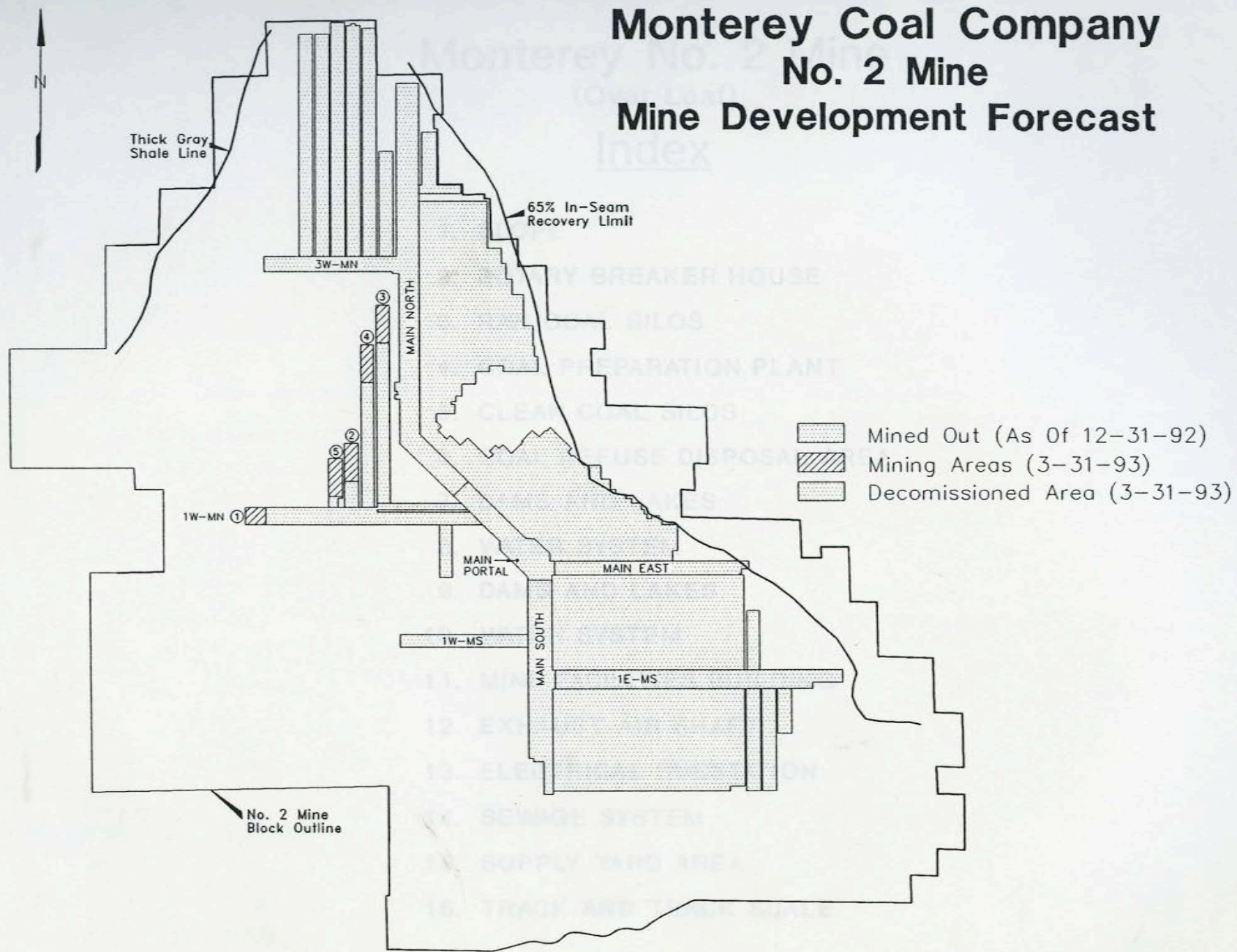
# Monterey Coal Company Operating Summary

	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
Safety LTA Freq.	26.0	23.9	14.9	14.1
Med Freq.	42.4	37.1	24.2	21.3
Production (kST)	4,715	4,589	4,946	4,434
Productivity (Tons/Man-Day)	18.7	19.1	20.7	21.8
Shipments - Term	4,716	4,434	4,721	4,185 -1699
- Spot	<u>42</u>	<u>282</u>	<u>226</u>	<u>167</u> -168
Total	4,758	4,716	4,947	4,352 -1867 = 2485

No 1  
↓  
No 2  
↓



# Monterey Coal Company No. 2 Mine Mine Development Forecast Index





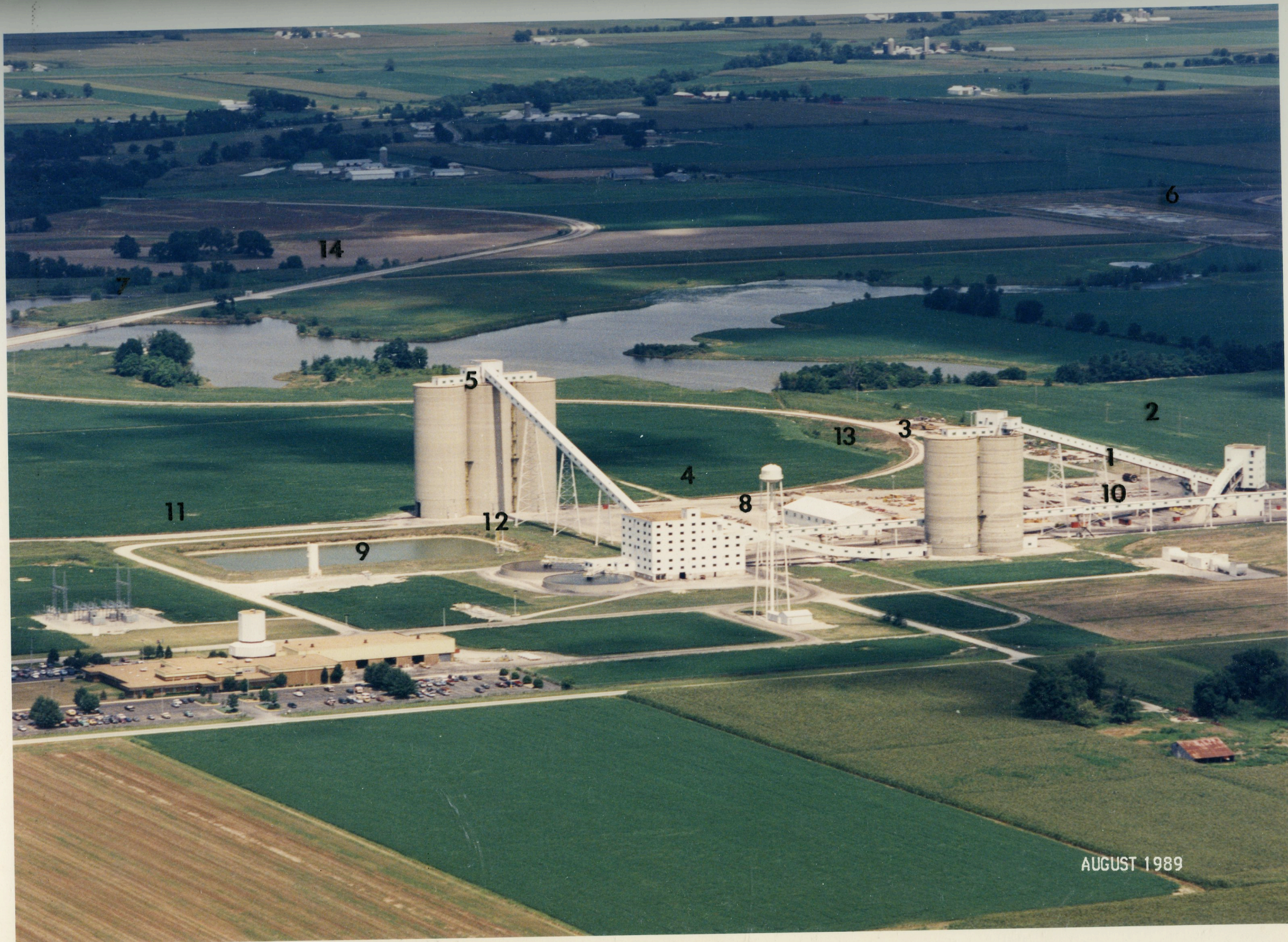
# Monterey No. 2 Mine

(Over Leaf)

## Index

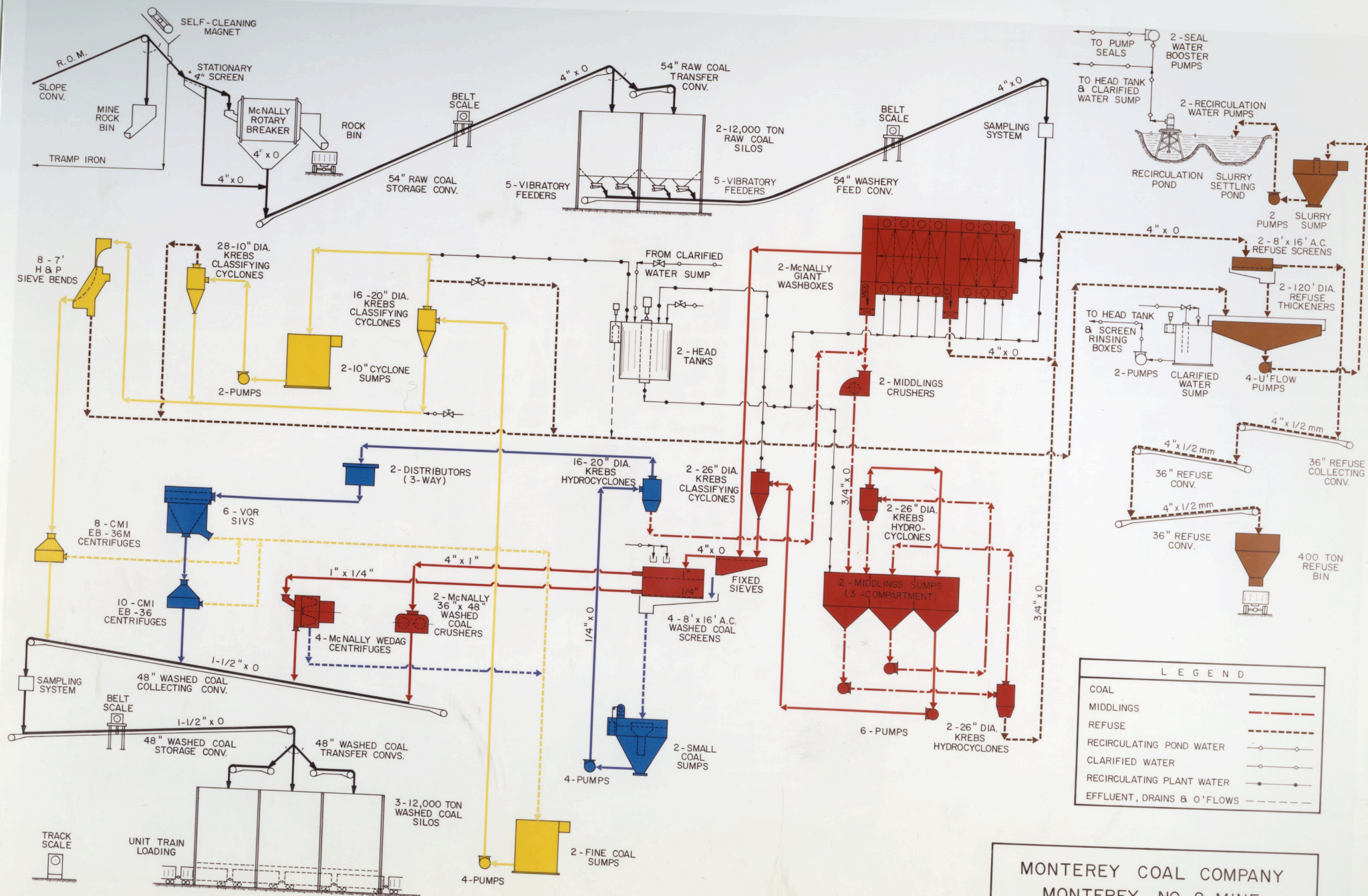
1. SLOPE
2. ROTARY BREAKER HOUSE
3. RAW COAL SILOS
4. COAL PREPARATION PLANT
5. CLEAN COAL SILOS
6. COAL REFUSE DISPOSAL AREA
7. DAMS AND LAKES
8. WATER SYSTEM
9. DAMS AND LAKES
10. WATER SYSTEM
11. MINE FACILITIES BUILDING
12. EXHAUST AIR SHAFT
13. ELECTRICAL SUBSTATION
14. SEWAGE SYSTEM
15. SUPPLY YARD AREA
16. TRACK AND TRACK SCALE





AUGUST 1989





LEGEND

COAL	—
MIDDINGS	- - -
REFUSE	· · ·
RECIRCULATING POND WATER	○ — ○
CLARIFIED WATER	○ — ○
RECIRCULATING PLANT WATER	○ — ○
EFFLUENT, DRAINS & O'FLOWS	- - -

MONTEREY COAL COMPANY  
MONTEREY NO. 2 MINE



## MONTEREY COAL COMPANY

### NO. 2 MINE

### ALBERS, ILLINOIS

The No. 2 Mine is located immediately south of Albers, Illinois, and approximately 35 miles east of St. Louis, Missouri. This mine is an underground operation extracting the Illinois No. 6 coal seam using a room and pillar mining method. Mining is performed by continuous miners. No. 2 Mine has a design capacity of 3.4 million tons of clean coal annually.

#### SURFACE FACILITIES

The major surface facilities at the No. 2 Mine are (for reference, the number preceding each facility described below corresponds to the number shown on the enclosed aerial photograph):

1. Slope

After the coal has been mined underground, it is brought to the surface through the Slope. The Slope is a concrete-lined tunnel constructed on a 17-degree incline from the coal seam to the surface 330 feet above. The Slope measures 15 feet wide by 16 feet high and contains two compartments. The upper compartment houses a 54-inch wide belt conveyor designed to carry raw coal at 2,000 tons per hour from the coal seam to the Rotary Breaker House just beyond the slope portal. The lower compartment is used for transporting supplies into the mine by rail.

2. Rotary Breaker House

Coal produced underground is transported up the Slope on a 54-inch wide belt conveyor to the Rotary Breaker House. At the discharge of this conveyor, a suspended magnet removes "tramp" iron, which consists of roof bolts and other accessories to mining which advertently end up in the raw coal stream. The rotary breaker then reduces the raw coal to a maximum size of 4 inches and separates any remaining large rock from the coal. This facility is designed to handle 2,000 tons of raw coal per hour.



3. Raw Coal Silos

The Raw Coal Silos are used for storage of coal that moves from the Rotary Breaker House on a 54-inch wide belt conveyor. Raw coal is stored in these silos until it is conveyed to the Coal Preparation Plant for cleaning. Each reinforced concrete silo is 70 feet in diameter, stands 160 feet tall, and has a storage capacity of 12,000 tons.

4. Coal Preparation Plant

From the Raw Coal Silos, coal is transported to the Coal Preparation Plant on a 54-inch wide belt conveyor at a designed rate of 2,000 tons per hour. At the plant, the raw coal is processed in two 1000 ton per hour cleaning circuits. Independent operation of these cleaning circuits allows for continuous plant operation. The 14,400 square foot Coal Preparation Plant stands seven stories high with two 120-foot diameter thickeners located nearby. The thickeners are used to help reduce water usage of the plant and to increase the density of the refuse slurry. The plant contains extensive equipment for cleaning the coal and reducing its size to a maximum of 1-1/2 inches. Impurities are removed from the coal by an artificial gravity separation process with the combined use of water and air. Coarse refuse produced during cleaning is dewatered and conveyed to the Coal Refuse and Slurry Disposal Area while fine refuse is pumped to this area. Process water is pumped to the plant from the Recirculation Lake and reused. The entire cleaning operation is controlled from a single control panel in the plant. Jig operation is automatically controlled by an online quality analyzer. This unit checks product quality and adjusts the jig operation to yield a uniform coal of a target quality.

5. Clean Coal Silos

After the coal is prepared and impurities removed, it is transported to the Clean Coal Silos on a 48-inch wide belt conveyor having a designed capacity of 1,387 tons per hour. The three Clean Coal Silos are constructed of reinforced concrete and are 190 feet tall each with a diameter of 70 feet. The storage capacity of each silo is 12,000 tons. Each of the Clean Coal Silos has an 18-foot wide by 22-foot high opening at the bottom with a railroad track running through all three. This allows coal to be loaded directly from storage silos into trains for transport to the customer. The loadout capacity is 5,000 tons per hour.



6. Coal Refuse Disposal Area

Refuse from the coal cleaning operation is transported to a 400-ton bin in the Coal Refuse and Slurry Disposal Area via two 36-inch wide belt conveyors in series, totaling 4,200 feet in length. The maximum capacity of the belt conveyor system is 650 tons per hour. From the bin, the refuse is loaded into 50-ton off-highway trucks and taken to a designated location within the Coal Refuse and Slurry Disposal Areas where it is dumped, spread, and compacted to form the outer dikes for the Slurry Disposal Ponds. Fine refuse is pumped from the Coal Preparation Plant into the Slurry Disposal Pond. Water, decanted from the slurry, is directed to the Recirculation Lake. The Coal Refuse and Slurry Disposal Areas are surrounded by earth screen dikes.

7. Dams and Lakes

The dam constructed to form the Fresh Water Lake is 700 feet long and also serves as the road bed over which the unit trains travel as they enter and leave the mine site. The Fresh Water Lake covers 50 acres and stores 70 million gallons of water. The Recirculation Lake dam is 600 feet long, impounding a lake with a surface area of 30 acres and a volume of 65 million gallons. A pump station utilizing two 2,200 gallon per minute pumps located at the Recirculation Lake, pumps water to the Coal Preparation Plant. A pump station at the Fresh Water Lake, employing two 600 gallon per minute pumps, pumps water to the elevated water tower and Water Treatment Plant at the mine site.

8. Water System

The focal point of the water system is the Water Treatment Plant, located at the base of a 190-foot high elevated water storage structure comprised of two tanks. The 60,000 gallon main head tank located at the top of the structure is used to store water for fire protection at the site and for underground usage. A 15,000 gallon potable water storage tank is located 120 feet up on the tower structure. The 1,065 square foot Water Treatment Plant contains facilities to chlorinate water from two 15 gallon per minute deep wells on the site before it is piped to the Mine Facilities Building and other locations.



9. Mine Facilities Building

The Mine Facilities Building is a modern, attractive structure providing several functions that are vitally important in the operation of the mine. The most distinctive feature of the building is the elevator tower. This brings attention to the elevator that carries workers down the Intake Air Shaft to the coal seam, 330 feet below. The concrete-lined Intake Air Shaft is 20 feet in diameter. Other features of the Mine Facilities Building are the following:

- A. A waiting room where the workers gather before going underground.
- B. Shower and change room facilities for salaried personnel and wage earners.
- C. An administrative section that can accommodate 32 persons.
- D. A Training section consisting of an Assembly Room for 120 persons and a smaller Training Room for 8-15 persons.
- E. A Nurses Station and a Mine Rescue Room.
- F. A Mine Operations Control Room, from which the mine operations are monitored.
- G. A Coal Quality Control Laboratory and a Mine Health and Safety Laboratory.
- H. A Warehouse of 9,300 square feet.
- I. A Shop of 13,850 square feet for maintenance of underground equipment.

The entire Mine Facilities Building comprises approximately 56,000 square feet.

10. Exhaust Air Shaft

The Exhaust Air Shaft is 20 feet in diameter and extends to the coal seam 330 feet below the surface. At the surface opening of the Exhaust Air Shaft is a fan house containing two mine ventilation fans. Each fan is driven by an 800 HP motor and has the capability of moving 500,000 cubic feet of air per minute at 8 inches fan water gauge.

11. Electrical Substation

Electric power for the No. 2 Mine is provided by Illinois Power Company at 138,000 volts to a Substation located on the site. Included within the Substation are two 10,000 KVA transformers with associated high voltage fuses, arrestors and disconnect switches as well as low voltage metal clad switchgear, grounding resistors, etc. Power is distributed from the Substation at 4,160 volts



to the various surface facilities. Power is also supplied underground at 13,800 volts via a borehole located inside the Substation.

12. Sewage System

The Sewage Treatment Plant is capable of treating 27,000 gallons per day of domestic sewage and shower water from the Mine Facilities Building and the Coal Preparation Plant. The sewage is treated by contact stabilization; the effluent is discharged into a Collecting Pond at the site. The 3.3-acre Collecting Pond also serves as an additional water supply for the Coal Preparation Plant.

13. Supply Yard Area

The Supply Yard Area consists of a 13,600 square foot covered storage building and a large open storage area that is linked to the Mine Facilities Building Shop and the Slope by a track system. Included in the Supply Yard Area are tanks for buried storage of 30,000 gallons of hydraulic oil. A bulk oil unloading station is provided to facilitate delivery of oil to the mine site by either railway tanker or truck. Also included in the yard area is a concrete ramp for loading and unloading mining machinery from trucks.

14. Track and Track Scale

To transport clean coal to the customer, approximately 14,950 feet of 56-1/2-inch gauge track has been laid, utilizing rail weighing 136 pounds per yard. This track connects to a line owned by Norfolk Southern Railway System immediately north of the mine property. Unit trains passing under the Clean Coal Silos are loaded in a continuously-moving process. To determine the weight of coal dispatched an automatic bi-directional scale is employed. This scale obtains the tare weight of each car as it enters the track loop and the gross weight when it leaves after loading. A printout records the tare, gross, and net weight of each car, and totalizes the entire train on departure, all within an accuracy of 0.2%.



## UNDERGROUND OPERATIONS

Some of the major features of the underground operation are:

### 1. Geology

The Illinois No. 6 coal seam, within the block outline, lies approximately 330 feet below the surface. The seam averages 92 inches in thickness. The immediate roof above the seam is shale which varies in thickness from 4 to 60 inches. The main roof support member, which lies above the shale, is the Brereton Limestone which averages six (6) feet thick. The floor below the coal seam is a seat rock (underclay).

Recoverable coal reserves are calculated in excess of 80 million tons. At the design capacity of 3.4 million tons per year, the anticipated remaining mine life is approximately 24 years.

### 2. Mining Plan

The mining plan consists of a room and pillar method of mining utilizing main, submain, and panel entries. Pillars are not extracted.

Main entries are developed from the main portal in the north and south directions. Each main consists of 14 entries grouped into two sets. One set consists of four intake air entries and three neutral air entries. The neutral air entries contain a belt conveyor system and a track system. The remaining set of seven entries contain return air. The two sets of entries are separated by a barrier pillar. Main entries are mined 16.0 feet wide.

From the mains, submain entries are developed in the east and west directions. They consist of six to twelve entries depending on their length and the number of panels anticipated to be mined from them. Similar to main entries, submains also contain intake and return air entries as well as neutral air entries containing a belt conveyor and a track system. Submain entries are mined 16 or 20 feet wide, depending on roof conditions.

Panel entries are developed from and perpendicular to the submains. Currently, the mine is transitioning from regular mining sections to all supersections. This process should be complete by YE 1991. Supersections consist of ten entries: two intake air entries, six neutral air entries which include a belt conveyor and a track system, and two return air entries. All ten



entries are mined on advance using the supersection concept. Panel entries are mined 20 or 24 feet wide depending on roof conditions. Each panel is isolated from other panels and is sealed after mining is completed in that panel. Coal is extracted from the working face by continuous miners and is transported to the belt conveyor system by shuttle cars.

3. Mining Support Systems

- A. Belt Conveyor System - A belt conveyor system is utilized to transport raw coal from the mine. In main and submain entries, the system consists of 48- or 60-inch wide conveyors having a maximum length of 5,000 feet, depending on the number of panels anticipated to be mined from them. These conveyors have the structure supported by a rigid frame which is suspended from the roof. In panels, the conveyors are 36 or 42 inches wide having a maximum length of 5,500 feet. These conveyors have the structure supported by wire ropes or rigid frames which are also suspended from the roof. All conveyors are equipped with hydraulic take-ups.
- B. Track System - A track system is utilized for transportation of the men, equipment, and supplies into the mine. The track system is constructed of 60-pounds per yard rail laid on iron-clad ties with a 42-inch track gauge. The mobile track equipment receives power from a 250-volt DC trolley wire system.
- C. Ventilation System - Air is continually circulated throughout the mine. Each mining area is supplied with an individual split of fresh air by means of the intake air shaft and intake air entries. After crossing a mining area the air is directed through the return air entries and exhaust shaft to the surface. In addition, a neutral air supply enters the mine through the lower compartment of the slope. This fresh air is used in the neutral air entries, is isolated from the intake air and mining areas, and is directed to the return air entries and exhaust shaft to the surface.
- D. Power System - Power is supplied underground at 13,800 volts via a borehole located inside the substation. Power is distributed underground at 13,800 volts. The power is then transformed to 550 volts AC and 250 volts DC for utilization.



E. Water - Water for dust suppression and fire-fighting is introduced into the mine through a borehole. Water is distributed underground through 6, 4 and 3-1/2 inch lines.

4. Mining Equipment

Equipment in a regular mining section consists of the following:

- One Continuous Miner (AC)
- Two Shuttle Cars (AC)
- One Roof Bolter, dual boom (AC)
- One Belt Feeder (AC)
- One Scoop Tractor (Battery)
- One Power Center, 1,000 KVA

Equipment in a supersection consists of the following:

- Two Continuous Miners (AC)
- Four Shuttle Cars (AC)
- Two Roof Bolters, dual boom (AC)
- One Belt Feeder (AC)
- Two Scoop Tractors (Battery)
- Two Power Centers, 1,000 KVA each

Current staffing including both salaried and wage is 350, which consists of the mining crews, construction, maintenance, preparation, engineering, administrative, and supervisory personnel. Manpower will be gradually reduced via attrition to the ultimate goal of approximately 365 employees.

October 12, 1994



5. Mining Personnel

At current design capacity, during each operating day there are 11 mining crew shifts (unit shifts) worked. Each regular mining section crew consists of the following personnel:

- One Section Foreman
- Two Continuous Mining Machine Operators
- Two or Three Shuttle Car Operators
- Two Roof Bolter Operators
- One Scoop Tractor Operator
- One Utility Man (not required in units with scrubber-equipped continuous miner)
- One Section Repairman

Each supersection crew consists of the following personnel:

- One Section Foreman
- Two Continuous Mining Machine Operators
- Three Shuttle Car Operators
- Two Roof Bolter Operators
- One Scoop Tractor Operator
- Two Utility Men
- Two Section Repairmen

Current staffing including both Salaried and Wage is 450, which consists of the mining crews, construction, maintenance, preparation, engineering, administrative, and supervisory personnel. Manpower will be gradually reduced via attrition to the ultimate goal of approximately 365 employees.

October 17, 1991