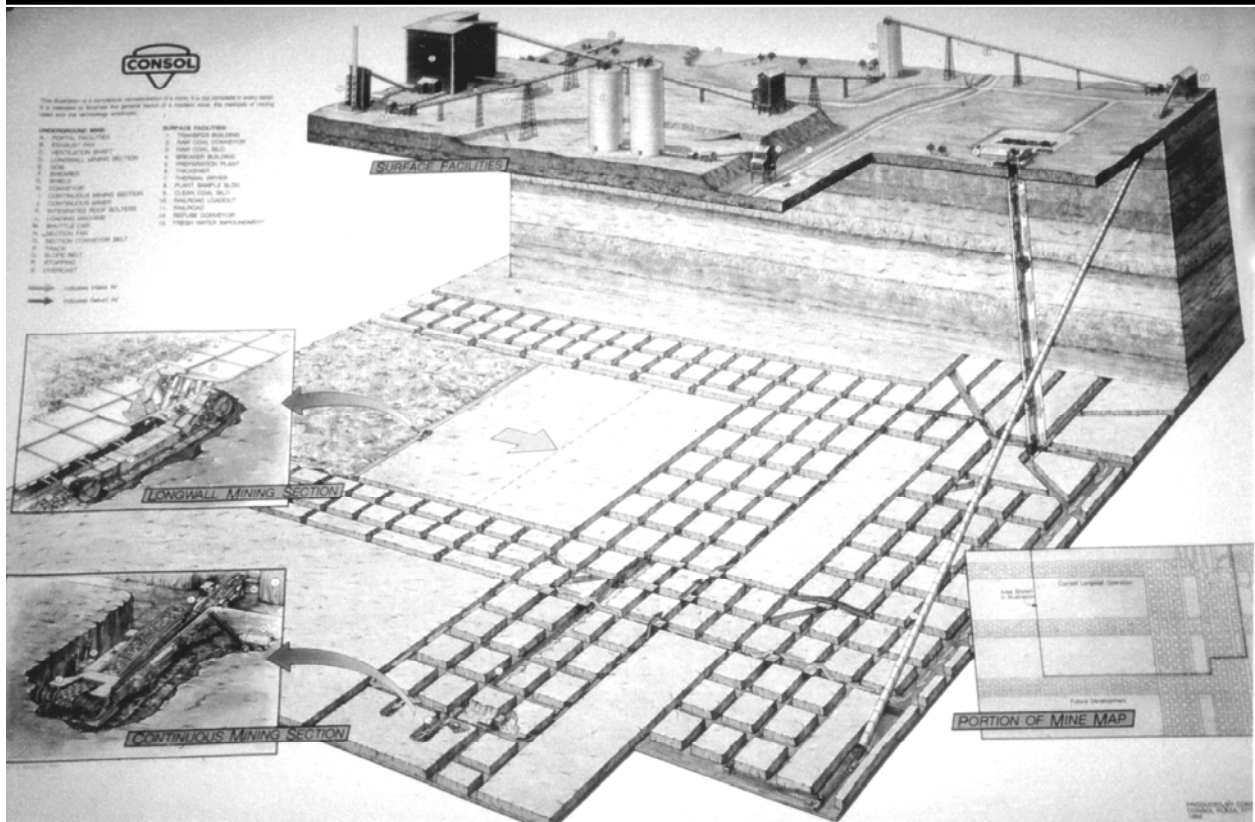


## IV UNDERGROUND PERMITS AND SUBSIDENCE CONTROL



*Schematic courtesy of Consolidation Coal Company*

### Modern Underground Mining

Today, underground mining accounts for a relatively minor portion of Indiana production, with annual output of about 10% of the total coal mined in the State. The prevalent underground mining technique employed in Indiana is the room and pillar mining method. Modern room and pillar mining technology is vastly improved from historical practices and provides greater protection for the workers and to surface features while maximizing coal recovery.

The tunnels where the coal is removed are called "rooms." The coal blocks that are left behind to support the roof and the surface are called "pillars." Hence the name "room and pillar mining." A machine called a continuous miner rips the coal from the seam with a rotating head. Blasting is seldom used in underground extraction of coal in Indiana except for shaft development. Conveyors transport coal from the working face to the shaft or slope tunnel that transports it to the surface for processing and shipping.

Other methods of extraction exist which allow subsidence to occur in a controlled and predictable fashion. The most common planned subsidence mining technique used in the United States is called longwall mining. Secondary mining for partial pillar recovery is sometimes used for higher extraction.

Regardless of the mining technique, the Division of Reclamation regulates the environmental affects of underground mining. Other state and federal agencies, such as the Indiana Bureau of Mines and U.S. Mine Safety and Health Administration are responsible for safety of mine workers.

## **Underground Mine Permit Application Process and Requirements**

Procedures for public notice, public participation, and application review for underground permit applications are identical to those for surface mining applications. Environmental protection and reclamation requirements are also virtually identical except that underground mining applications must also contain a subsidence control plan and special provisions for prior notice to surface owners affected by the coal extraction.

## **Subsidence Control Plan**

In addition to environmental and reclamation requirements, such as filling shafts which extend from the coal to the land surface, underground applicants must devise a detailed subsidence prevention or control plan. It must be based on detailed local geological analysis, engineered safety factor calculations and the sensitivity of protected surface features, such as buildings, impoundments, roads and utility transmission lines.

As a supplement to the complex engineering and design, underground miners must provide information on the coal removal technique, percentage of coal extraction, pillar and room dimensions, geologic layers above and below the coal, mapping of proposed mined areas, groundwater systems, and an extensive inventory of land features and structures located above the underground mine, such as homes, outbuildings, roads, churches, public buildings, impoundments, utility transmission lines and any other structures. All of this data and technical analysis are woven together to produce state of the art plans specifically designed to protect citizens and the environment.

The required subsidence control plan is subjected to detailed scrutiny by the DOR subsidence specialist. This technical professional evaluates the supplied information to determine that sufficient mine stability is designed for room and pillar mines and that planned subsidence mining is designed to occur in a planned and predictable fashion and will be conducive to restoration of the land surface. Underground miners must provide back up plans for restoration of the surface land and features in the event that a subsidence results in damage in spite of extensive prevention provisions. The mitigation

plan must demonstrate how the operator will restore the land and structures to a condition that will support the same uses that existed prior to subsidence. Operators are required to carry a non-cancelable liability insurance policy that covers possible subsidence damages.

### **Surface Owner Notification**

Underground miners must alert surface owners of their intent to extract coal beneath their property by sending written notice directly to the surface owner at least 6 months prior to the beginning of mining beneath the property.

### **Subsidence Damage**

Anyone suspecting subsidence damage, should first contact the mining company with their claim. If a satisfactory conclusion is not reached, contact the Division. If the company is found liable, the regulations require that action be taken by the company to restore the damaged areas. If structures are damaged by subsidence that results from active mining, the mining company will repair the structure. Prior to mining, the company may purchase lands and structures that it intends to undermine. Land damaged by subsidence must be restored to a condition capable of supporting the uses it was capable of supporting prior to subsidence.

### **Mine Subsidence Insurance**

Underground mines have removed more than 900 million tons of coal in Indiana since the 1800's. Many of these mines were never surveyed, thus no maps exist to describe the extent of abandoned underground mines. Geologists estimate that up to 150 square miles of underground coal mines exist in the 26 coal producing counties in Indiana.

Conventional homeowners insurance does not cover damage caused by mine subsidence. However, insurance protection sponsored by the State of Indiana is available for homeowners through your insurance agent. This insurance is available in those counties most susceptible to mine subsidence damage from inactive underground coal mines abandoned before August 3, 1977.

In 1986, the Indiana Legislature established the Indiana Mine Subsidence Insurance Fund to provide insurance to property owners in the 26 Indiana coal producing counties. Property owners in the following counties are eligible for this insurance: Clay, Crawford, Daviess, Dubois, Fountain, Gibson, Greene, Knox, Lawrence, Martin, Monroe, Montgomery, Orange, Owen, Parke, Perry, Pike, Posey, Putnam, Sullivan, Spencer, Vanderburgh, Vermillion, Vigo, Warren, and Warrick.

Maps of abandoned underground mine works are available through the Indiana Geological Survey in Bloomington (812-855-7636). These maps are beneficial in determining whether you live in or near an area where underground mining activity took place.

Purchasing mine subsidence insurance is mandatory before reporting suspected mine subsidence damage. Coverage is designed only for abandoned underground coal mines. Remember, compensation or repairs for damage caused by active underground mining is the responsibility of the mine operator.

You may add subsidence insurance to your property owners or homeowners policy when it is purchased or renewed. For more information about coal mine subsidence insurance, contact your insurance agent or the Indiana Subsidence Insurance Fund at the Indiana Department of Insurance.

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