Types of Underground Mining

Underground mining for coal is conducted by either room and pillar mining or longwall mining.

In room and pillar mining, approximately 50 percent of the coal is removed, using a continuous miner, from areas known as rooms. The rest of the coal is left in place in the form of pillars that hold up the roof and prevent subsidence. The intent of this mining method is to prevent subsidence, but in many cases some limited and random subsidence does occur as pillars deteriorate over time and roof and floor conditions change.

Longwall mining is designed to create controlled and predictable subsidence. Large blocks of coal, known as panels, often 1,000 feet wide and up to two miles long, are first isolated by room and pillar mining which creates chain pillars around the panel. These chain pillars provide access to the panel for ventilation and conveyors to transport the coal to the surface and provide access for miners to the working area. All of the coal between the chain pillars is then removed with a rotating cutting head which moves back and forth across the exposed coal face. Hydraulic shields support the roof as the coal is extracted. The shields are then moved forward for the next cut allowing the roof to collapse behind them. The collapsing of the roof results in a subsidence trough or long depression of the land surface. The amount of the subsidence is dependent on the depth and thickness of the coal seam.

Permit Process

Underground mine operators must apply for a permit prior to mining. The permit application must include environmental information for areas where surface facilities supporting the underground mine will be constructed (portals, ventilation shafts, coal processing, coal waste disposal, sediment ponds, etc.).

An underground application must also contain a "subsidence control plan." In the subsidence control plan, the applicant must demonstrate that sound mining and engineering standards and practices are proposed and that either adequate mine stability is being provided to minimize the likelihood of subsidence (room and pillar mining) or that mining will be carried out to produce subsidence in a predictable and controlled manner (longwall mining).

All subsidence control plans contain information on the mining technique, coal extraction plan, and the geology in the shadow area (area of underground coal extraction). It also must locate on a map, all structures and surface features over the proposed mining areas and define the groundwater resources. A specific mine plan with yearly mining projections is also provided.

For longwall mining, the company details how subsidence will impact structures, ground water supplies, and surface drainage. They also provide general plans to correct the anticipated impacts.

During the application process, the application is on file at the county clerk's office as well as the Land Reclamation Division's offices and is available for review by the public. A newspaper ad is published once a week for four weeks announcing the application, indicating where it may be reviewed and providing the address where comments may be sent. An informal conference or public hearing may be requested by members of the public. The purpose of the informal conference or public hearing is to allow the public to provide their concerns about the application to the Department.

Approved Operations

Once a company is approved for underground mining, the Department continually inspects the operator's performance in meeting the regulatory requirements both at the surface facilities and over the extraction areas.

All surface property owners and occupants of dwellings above the underground works must be notified by the mine operator at least six months prior to being undermined.

All subsidence impacts that occur, whether planned as in longwall mining, or unintentionally as in room in pillar mining, must be corrected.

Land damaged by subsidence must be returned to a condition capable of maintaining the uses which the land was capable of supporting before subsidence damage. Repair measures may include cut and fill grading, tiling, and/or the installation of waterways and ditches. The mine operator is required to pay the land owner for crop loss until repairs are completed.

All structures damaged by subsidence must be repaired, replaced, or the owner compensated for its value.

Drinking, domestic or residential water supplies contaminated, diminished or interrupted by subsidence must be replaced by the mine operator. Replacement can take the form of drilling a new well, hauling in water on a temporary basis or connecting the impacted party to a public water supply. If the land owner's water supply is replaced by being connected to a public water supply, the mine operator must pay for any installation costs and any operation and maintenance costs in excess of what would be considered customary and reasonable.

Longwall Mining

If longwall mining is proposed, landowners will be contacted by the mine operator to schedule a pre-subsidence survey of both their structures and their water supply. The purpose is to record the pre-subsidence structural condition so that it can be returned to the same condition after subsidence. For wells and springs, both the quality of the water and the quantity normally available from the well or spring is recorded for comparison after subsidence.

Because longwall mining creates planned subsidence, the mine operator must take steps to minimize damage to structures prior to the structures being undermined unless the owner of the structure provides a written waiver. Damage minimization techniques can include installation of flexible utility couplings, supporting the above ground portion of the structure on beams to keep it level while subsidence takes place, and trenching around the foundation to minimize foundation damage. Methods are selected based on the type and extent of subsidence expected.

Subsidence from longwall mining is a relatively rapid process. Most of the subsidence movements occur within days to a few months after the pass of the longwall. Additional, smaller, uniform movements can occur over a year or more.

Coal Mining and Subsidence Rights

The Department is prohibited from adjudicating property title disputes. The mine operator is required to provide an affidavit in the application stating they possess, or will possess prior to mining, the right to mine the coal. The affidavit must include a statement stating they possess the right to subside the surface, if longwall mining is proposed.

In most cases, the mine operator owns or leases the coal seam, but does not own or control the surface above the coal. Based on the deed or lease language, the operator would have the right to extract the coal by underground mining, but may, or may not, have the right to remove enough coal to intentionally subside the surface.

If the company wishes to conduct longwall mining, but does not have a coal deed or coal lease agreement granting them the right to subside the surface, the company must reach a separate subsidence agreement with the surface owner or obtain ownership of the surface.

Some deeds or lease agreements are very old and the language found in them may not be clear on the issue of subsidence. Land owners are strongly advised to seek legal counsel if they have any question concerning the mineral rights on their property and subsidence rights. If a land owner is approached by a coal company wanting to purchase either their mineral rights or the right to subside, it is recommended that the land owner seeks the counsel of an attorney experienced in mineral rights issues.

Additional information concerning underground mining can be found on the Department's website at http://dnr.state.il.us/mines/lrd/index.htm. If you have any questions concerning underground mining, please feel free to contact the Land Reclamation Division.

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ILLINOIS DEPARTMENT OF NATURAL RESOURCES

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Underground Mines and Subsidence

for Lands Undermined after February 1, 1983

Basic Information for Landowners