

Explosives Use in Mining - Coal

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The mining industry uses roughly 87% of all the explosives used in the U.S. We're going to take a look at four types of mining which use explosives - coal, iron, copper, and crushed rock mining.

The largest coal-producing states are: Wyoming, West Virginia, and Kentucky. These states were also the largest explosives-consuming states, accounting for 41% of total U.S. explosives sales.

Coal is mined using one of two basic methods - surface or underground mining. The depth of the coalbed and the surrounding topography are determining factors.

Coalbeds located more than 100-200 feet* below the surface, or on mountainous terrain, are usually mined using underground methods. One underground method involves drilling holes and placing explosives in them. The explosives blast large chunks of coal loose and the chunks are loaded onto conveyor belts and transported to the surface on shuttle cars.

Drift mining, another form of under-

ground mining, is used when coal is fairly close to the surface, but too deep for surface mining methods. Typically located on a hillside, a drift mine is constructed horizontally. The subhorizontal and horizontal tunnels are driven at an incline just beneath the vein allowing gravity to assist with carrying the material out of the mine.

Although underground mining was the dominating method for retrieving coal for many years, it only accounts for about 40% of coal production today.



Large populations of wildlife enjoy the reclaimed lands of the Caballo Mine in Wyoming. The site was recognized in 2003, by the U.S. Department of the Interior with a National Reclamation Excellence Award for improving wildlife habitat.

Photo courtesy of mii.org

When the conditions and coal seam is just right, surface mining is the least expensive and most productive method of mining coal. Coal seams located close to the surface in relatively flat terrain will

typically use surface mining. In fact, surface mining accounts for about 60% of U.S. coal production.

There are several types of surface mining including strip, open-pit, mountain-top removal (commonly referred to as MTR), and dredging. However, most surface mines follow the same basic steps to produce coal. Bulldozers clear and level the mining area; topsoil is removed and stored for later use in the reclamation process; holes are drilled through the overburden, loaded with explosives, and discharged, shattering the rock in the overburden; power shovels or draglines clear away the overburden until the coal is exposed. Smaller shovels load the coal onto trucks, which carry the coal to a preparation plant.

Once the coal is removed, the area is reclaimed. The mined area is reforested and used as recreational, commercial, and even wildlife developments. Since 1977, an estimated two million acres* of coal mine lands have been reclaimed.

Explosives play an important role in the production of coal. Next month, we'll take a look at explosives use in the iron and copper mining industries.

*(1 foot ≈ .304 meters)
(1 acre ≈ .405 hectares)



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April 16th: Exhibitor set up
April 17th: NDA Workshop in the morning and Clinic in the afternoon
April 18th: Clinic
April 19th: Morning Clinic and wrap up

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