



Glossary of Mining Terms

Active workings - Any place in a mine where miners are normally required to work or travel and which are ventilated and inspected regularly.

Adit - A nearly horizontal passage from the surface by which a mine is entered and dewatered. A blind horizontal opening into a mountain, with only one entrance.

Advance - Mining in the same direction, or order of sequence; first mining as distinguished from retreat.

Air split - The division of a current of air into two or more parts.

Airway - Any passage through which air is carried. Also known as an air course.

Anemometer - Instrument for measuring air velocity.

Angle of dip - The angle at which strata or mineral deposits are inclined to the horizontal plane.

Area (of an airway) - Average width multiplied by average height of airway, expressed in square feet.

Auger - A rotary drill that uses a screw device to penetrate, break, and then transport the drilled material (coal).

Auxiliary operations - All activities supportive of but not contributing directly to mining.

Auxiliary ventilation - Portion of main ventilating current directed to face of dead end entry by means of an auxiliary fan and tubing.

Back - The roof or upper part in any underground mining cavity.

Backfill – Mine waste or rock used to support the roof after coal removal.

Barricading - Enclosing part of a mine to prevent inflow of noxious gasses from a mine fire or an explosion.

Barrier - Something that bars or keeps out. Barrier pillars are solid blocks of coal left between two mines or sections of a mine to prevent accidents due to intrushes of water, gas, or from explosions or a mine fire.





Beam - A bar or straight girder used to support a span of roof between two support props or walls.

Belt conveyor - A looped belt on which coal or other materials can be carried and which is generally constructed of flame-resistant material or of reinforced rubber or rubber-like substance.

Belt idler - A roller, usually of cylindrical shape, which is supported on a frame and which, in turn, supports or guides a conveyor belt. Idlers are not powered but turn by contact with the moving belt.

Belt take-up - A belt pulley, generally under a conveyor belt and in by the drive pulley, kept under strong tension parallel to the belt line. Its purpose is to automatically compensate for any slack in the belting created by start-up, etc.

Bituminous coal – A middle rank coal (between subbituminous and anthracite) formed by additional pressure and heat on lignite. Usually has a high Btu value and may be referred to as "soft coal."

Black damp - A term generally applied to carbon dioxide. Strictly speaking, it is a mixture of carbon dioxide and nitrogen. It is also applied to an atmosphere depleted of oxygen, rather than having an excess of carbon dioxide.

Blasting agent - Any material consisting of a mixture of a fuel and an oxidizer.

Blasting cap - A detonator containing a charge of detonating compound, which is ignited by electric current or the spark of a fuse. Used for detonating explosives.

Blasting circuit - Electric circuits used to fire electric detonators or to ignite an igniter cord by means of an electric starter.

Bleeder or bleeder entries - Special air courses developed and maintained as part of the mine ventilation system and designed to continuously move air-methane mixtures emitted by the gob or at the active face away from the active workings and into mine-return air courses. Alt: Exhaust ventilation lateral.

Bottom - Floor or underlying surface of an underground excavation.

Box-type magazine - A small, portable magazine used to store limited quantities of explosives or detonators for short periods of time at locations in the mine which are convenient to the blasting sites at which they will be used.

Brattice or brattice cloth - Fire-resistant fabric or plastic partition used in a mine passage to confine the air and force it into the working place. Also termed "line brattice," "line canvas," or "line curtain."

Breakthrough - A passage for ventilation that is cut through the pillars between rooms.





Brow - A low place in the roof of a mine, giving insufficient headroom.

Bump (or burst) - A violent dislocation of the mine workings which is attributed to severe stresses in the rock surrounding the workings.

Canopy - A protective covering of a cab on a mining machine.

Cap - A miner's safety helmet. Also, a highly sensitive, encapsulated explosive that is used to detonate larger but less sensitive explosives.

Cap block - A flat piece of wood inserted between the top of the prop and the roof to provide bearing support.

Check curtain - Sheet of brattice cloth hung across an airway to control the passage of the air current.

Chock - Large hydraulic jacks used to support roof in longwall and shortwall mining systems.

Coal - A solid, brittle, more or less distinctly stratified combustible carbonaceous rock, formed by partial to complete decomposition of vegetation; varies in color from dark brown to black; not fusible without decomposition and very insoluble.

Coal dust - Particles of coal that can pass a No. 20 sieve.

Coal mine - An area of land and all structures, facilities, machinery, tools, equipment, shafts, slopes, tunnels, excavations, and other property, real or personal, placed upon, under, or above the surface of such land by any person, used in extracting coal from its natural deposits in the earth by any means or method, and the work of preparing the coal so extracted, including coal preparation facilities. British term is "colliery".

Competent rock - Rock which, because of its physical and geological characteristics, is capable of sustaining openings without any structural support except pillars and walls left during mining (stalls, light props, and roof bolts are not considered structural support).

Continuous miner - A machine that constantly extracts coal while it loads it. This is to be distinguished from a conventional, or cyclic, unit which must stop the extraction process in order for loading to commence.

Conveyor - An apparatus for moving material from one point to another in a continuous fashion. This is accomplished with an endless (that is, looped) procession of hooks, buckets, wide rubber belt, etc.

Cover - The overburden of any deposit.





Crib - A roof support of prop timbers or ties, laid in alternate cross-layers, log-cabin style. It may or may not be filled with debris. Also may be called a chock or cog.

Cribbing - The construction of cribs or timbers laid at right angles to each other, sometimes filled with earth, as a roof support or as a support for machinery.

Crosscut - A passageway driven between the entry and its parallel air course or air courses for ventilation purposes. Also, a tunnel driven from one seam to another through or across the intervening measures; sometimes called "crosscut tunnel", or "breakthrough". In vein mining, an entry perpendicular to the vein.

Cross entry - An entry running at an angle with the main entry.

Deposit - Mineral deposit or ore deposit is used to designate a natural occurrence of a useful mineral, or an ore, in sufficient extent and degree of concentration to invite exploitation.

Detectors - Specialized chemical or electronic instruments used to detect mine gases.

Detonator - A device containing a small detonating charge that is used for detonating an explosive, including, but not limited to, blasting caps, exploders, electric detonators, and delay electric blasting caps.

Development mining - Work undertaken to open up coal reserves as distinguished from the work of actual coal extraction.

Diffusion - Blending of a gas and air, resulting in a homogeneous mixture. Blending of two or more gases.

Dilute - To lower the concentration of a mixture; in this case the concentration of any hazardous gas in mine air by addition of fresh intake air.

Dilution - The contamination of ore with barren wall rock in stopping.

Dip - The inclination of a geologic structure (bed, vein, fault, etc.) from the horizontal; dip is always measured downwards at right angles to the strike.

Drift - A horizontal passage underground. A drift follows the vein, as distinguished from a crosscut that intersects it, or a level or gallery, which may do either.

Drift mine – An underground coal mine in which the entry or access is above water level and generally on the slope of a hill, driven horizontally into a coal seam.

Drill - A machine utilizing rotation, percussion (hammering), or a combination of both to make holes. If the hole is much over 0.4m in diameter, the machine is called a borer.





Drilling - The use of such a machine to create holes for exploration or for loading with explosives.

Dummy - A bag filled with sand, clay, etc., used for stemming a charged hole.

Entry - An underground horizontal or near-horizontal passage used for haulage, ventilation, or as a mainway; a coal heading; a working place where the coal is extracted from the seam in the initial mining; same as "gate" and "roadway," both British terms.

Evaluation - The work involved in gaining a knowledge of the size, shape, position and value of coal.

Exploration - The search for mineral deposits and the work done to prove or establish the extent of a mineral deposit. Alt: Prospecting and subsequent evaluation.

Explosive - Any rapidly combustive or expanding substance. The energy released during this rapid combustion or expansion can be used to break rock.

Extraction - The process of mining and removal of coal or ore from a mine.

Face - The exposed area of a coal bed from which coal is being extracted.

Fall - A mass of roof rock or coal which has fallen in any part of a mine.

Fan, auxiliary - A small, portable fan used to supplement the ventilation of an individual working place.

Fan, booster - A large fan installed in the main air current, and thus in tandem with the main fan.

Fan signal - Automation device designed to give alarm if the main fan slows down or stops.

Fire damp - The combustible gas, methane, CH₄. Also, the explosive methane-air mixtures with between 5% and 15% methane. A combustible gas formed in mines by decomposition of coal or other carbonaceous matter, and that consists chiefly of methane.

Float dust - Fine coal-dust particles carried in suspension by air currents and eventually deposited in return entries. Dust consisting of particles of coal that can pass through a No. 200 sieve.

Floor - That part of any underground working upon which a person walks or upon which haulage equipment travels; simply the bottom or underlying surface of an underground excavation.

Formation - Any assemblage of rocks which have some character in common, whether of origin, age, or composition. Often, the word is loosely used to indicate anything that has been formed or brought into its present shape.





Fuse - A cord-like substance used in the ignition of explosives. Black powder is entrained in the cord and, when lit, burns along the cord at a set rate. A fuse can be safely used to ignite a cap, which is the primer for an explosive.

Gallery - A horizontal or a nearly horizontal underground passage, either natural or artificial.

Gob - The term applied to that part of the mine from which the coal has been removed and the space more or less filled up with waste. Also, the loose waste in a mine. Also called goaf.

Ground control - The regulation and final arresting of the closure of the walls of a mined area. The term generally refers to measures taken to prevent roof falls or coal bursts.

Gunite - A cement applied by spraying to the roof and sides of a mine passage.

Haulage - The horizontal transport of ore, coal, supplies, and waste. The vertical transport of the same is called hoisting.

Haulageway - Any underground entry or passageway that is designed for transport of mined material, personnel, or equipment, usually by the installation of track or belt conveyor.

Highwall - The unexcavated face of exposed overburden and coal in a surface mine or in a face or bank on the uphill side of a contour mine excavation.

Inby - In the direction of the working face.

Intake - The passage through which fresh air is drawn or forced into a mine or to a section of a mine.

Immediate roof - The roof strata immediately above the coalbed, requiring support during the excavation of coal.

Lamp - The electric cap lamp worn for visibility. Also, the flame safety lamp used in coal mines to detect methane gas concentrations and oxygen deficiency.

Layout - The design or pattern of the main roadways and workings. The proper layout of mine workings is the responsibility of the manager aided by the planning department.

Load - To place explosives in a drill hole. Also, to transfer broken material into a haulage device.

Loading machine - Any device for transferring excavated coal into the haulage equipment.

Main entry - A main haulage road. Where the coal has cleats, main entries are driven at right angles to the face cleats.





Main fan - A mechanical ventilator installed at the surface; operates by either exhausting or blowing to induce airflow through the mine roadways and workings.

Man trip - A carrier of mine personnel, by rail or rubber tire, to and from the work area.

Methane – A potentially explosive gas formed naturally from the decay of vegetative matter, similar to that which formed coal. Methane, which is the principal component of natural gas, is frequently encountered in underground coal mining operations and is kept within safe limits through the use of extensive mine ventilation systems.

Methane monitor - An electronic instrument often mounted on a piece of mining equipment, that detects and measures the methane content of mine air.

Mine development - The term employed to designate the operations involved in preparing a mine for ore extraction. These operations include tunneling, sinking, cross-cutting, drifting, and raising.

Miner - One who is engaged in the business or occupation of extracting ore, coal, precious substances, or other natural materials from the earth's crust.

Misfire - The complete or partial failure of a blasting charge to explode as planned.

Natural ventilation - Ventilation of a mine without the aid of fans or furnaces.

Outby; outbye - Nearer to the shaft, and hence farther from the working face. Toward the mine entrance. The opposite of inby.

Outcrop – Coal that appears at or near the surface.– Layers of soil and rock covering a coal seam. Overburden is removed prior to surface mining and replaced after the coal is taken from the seam.

Overcast (undercast) - Enclosed airway which permits one air current to pass over (under) another without interruption.

Panel - A coal mining block that generally comprises one operating unit. a bar, used to cut off power at the machine in case of an emergency.

Permissible - That which is allowable or permitted. It is most widely applied to mine equipment and explosives of all kinds which are similar in all respects to samples that have passed certain tests of the MSHA and can be used with safety in accordance with specified conditions where hazards from explosive gas or coal dust exist.

Pillar - An area of coal left to support the overlying strata in a mine; sometimes left permanently to support surface structures.





Pinning - Roof bolting.

Pitch - The inclination of a seam; the rise of a seam.

Plan - A map showing features such as mine workings or geological structures on a horizontal plane.

Portal - The structure surrounding the immediate entrance to a mine; the mouth of an adit or tunnel.

Post - The vertical member of a timber set.

Primary roof - The main roof above the immediate top. Its thickness may vary from a few to several thousand feet.

Primer (booster) - A package or cartridge of explosive which is designed specifically to transmit detonation to other explosives and which does not contain a detonator.

Prop - Coal mining term for any single post used as roof support. Props may be timber or steel; if steel--screwed, yieldable, or hydraulic.

Return - The air or ventilation that has passed through all the working faces of a split.

Rib - The side of a pillar or the wall of an entry. The solid coal on the side of any underground passage. Same as rib pillar.

Roll - (1) A high place in the bottom or a low place in the top of a mine passage, (2) a local thickening of roof or floor strata, causing thinning of a coal seam.

Roof - The stratum of rock or other material above a coal seam; the overhead surface of a coal working place. Same as "back" or "top."

Roof bolt - A long steel bolt driven into the roof of underground excavations to support the roof, preventing and limiting the extent of roof falls. The unit consists of the bolt (up to 4 feet long), steel plate, expansion shell, and pal nut. The use of roof bolts eliminates the need for timbering by fastening together, or "laminating," several weaker layers of roof strata to build a "beam."

Roof fall - A coal mine cave-in especially in permanent areas such as entries.

Roof jack - A screw- or pump-type hydraulic extension post made of steel and used as temporary roof support.

Roof support - Posts, jacks, roof bolts and beams used to support the rock overlying a coal seam in an underground mine. A good roof support plan is part of mine safety and coal extraction.





Sandstone - A sedimentary rock consisting of quartz sand united by some cementing material, such as iron oxide or calcium carbonate.

Scoop - A rubber tired-, battery- or diesel-powered piece of equipment designed for cleaning runways and hauling supplies.

Secondary roof - The roof strata immediately above the coalbed, requiring support during the excavating of coal.

Section - A portion of the working area of a mine.

Self-contained breathing apparatus - A self-contained supply of oxygen used during rescue work from coal mine fires and explosions; same as SCSR (self-contained self rescuer).

Self-rescuer – A small filtering device carried by a coal miner underground, either on his belt or in his pocket, to provide him with immediate protection against carbon monoxide and smoke in case of a mine fire or explosion. It is a small canister with a mouthpiece directly attached to it. The wearer breathes through the mouth, the nose being closed by a clip. The canister contains a layer of fused calcium chloride that absorbs water vapor from the mine air. The device is used for escape purposes only because it does not sustain life in atmospheres containing deficient oxygen. The length of time a self-rescuer can be used is governed mainly by the humidity in the mine air, usually between 30 minutes and one hour.

Shaft - A primary vertical or non-vertical opening through mine strata used for ventilation or drainage and/or for hoisting of personnel or materials; connects the surface with underground workings.

Shaft mine – An underground mine in which the main entry or access is by means of a vertical shaft.

Shale - A rock formed by consolidation of clay, mud, or silt, having a laminated structure and composed of minerals essentially unaltered since deposition.

Shift - The number of hours or the part of any day worked.

Shuttle car – A self-discharging truck, generally with rubber tires or caterpillar-type treads, used for receiving coal from the loading or mining machine and transferring it to an underground loading point, mine railway or belt conveyor system.

Sinking - The process by which a shaft is driven.

Slate - A miner's term for any shale or slate accompanying coal. Geologically, it is a dense, fine-textured, metamorphic rock, which has excellent parallel cleavage so that it breaks into thin plates or pencil-like shapes.

Slope - Primary inclined opening, connection the surface with the underground workings.





Slope mine – An underground mine with an opening that slopes upward or downward to the coal seam.

Sloughing - The slow crumbling and falling away of material from roof, rib, and face.

Spad – A spad is a flat spike hammered into a wooden plug anchored in a hole drilled into the mine ceiling from which is threaded a plumbline. The spad is an underground survey station similar to the use of stakes in marking survey points on the surface. A pointer spad, or sight spad, is a station that allows a mine foreman to visually align entries or breaks from the main spad.

Specific gravity - The weight of a substance compared with the weight of an equal volume of pure water at 4 degrees Celsius.

Stemming - The noncombustible material used on top or in front of a charge or explosive.

Strike - The direction of the line of intersection of a bed or vein with the horizontal plane. The strike of a bed is the direction of a straight line that connects two points of equal elevation on the bed.

Sump - The bottom of a shaft, or any other place in a mine, that is used as a collecting point for drainage water.

Support - The all-important function of keeping the mine workings open. As a verb, it refers to this function; as a noun it refers to all the equipment and materials--timber, roof bolts, concrete, steel, etc.--that are used to carry out this function.

Timber - A collective term for underground wooden supports.

Tractor - A battery-operated piece of equipment that pulls trailers, skids, or personnel carriers. Also used for supplies.

Tunnel - A horizontal, or near-horizontal, underground passage, entry, or haulageway, that is open to the surface at both ends. A tunnel (as opposed to an adit) must pass completely through a hill or mountain.

U

Underground mine – Also known as a "deep" mine. Usually located several hundred feet below the earth's surface, an underground mine's coal is removed mechanically and transferred by shuttle car or conveyor to the surface.

Universal coal cutter - A type of coal cutting machine which is designed to make horizontal cuts in a coal face at any point between the bottom and top or to make shearing cuts at any point between the two ribs of the place. The cutter bar can be twisted to make cuts at any angle to the horizontal or vertical.

Upcast shaft - A shaft through which air leaves the mine.





Velocity - Rate of airflow in lineal feet per minute.

Ventilation - The provision of a directed flow of fresh and return air along all underground roadways, traveling roads, workings, and service parts.

Volatile matter - The gaseous part, mostly hydrocarbons, of coal.

Water Gauge (standard U-tube) - Instrument that measures differential pressures in inches of water.

Wedge - A piece of wood tapering to a thin edge and used for tightening in conventional timbering.

White damp - Carbon monoxide, CO. A gas that may be present in the afterdamp of a gas- or coal-dust explosion, or in the gases given off by a mine fire; also one of the constituents of the gases produced by blasting. Rarely found in mines under other circumstances. It is absorbed by the hemoglobin of the blood to the exclusion of oxygen. One-tenth of 1% (.001) may be fatal in 10 minutes.

Width - The thickness of a lode measured at right angles to the dip.

Working face - Any place in a mine where material is extracted during a mining cycle.

Working place - From the outby side of the last open crosscut to the face.

Workings - The entire system of openings in a mine for the purpose of exploitation.

Working section - From the faces to the point where coal is loaded onto belts or rail cars to begin its trip to the outside.

