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Terminology

The following definitions set out some standard terminology used when setting up a mining database and in preparing for mine scheduling. Different parts of the world use different terms but fairly unimportant provided everyone involved in your particular project has a consistent understanding of the terms.
Abandon: To cease efforts to produce oil, gas or ore from a mine when it becomes unproductive or unprofitable.

Abutment: The areas of unmined rock at the edges of mining excavation that may carry elevated loads resulting from redistribution of stress. Example, in coal mining the weight of the rocks above a narrow roadway is transferred to the solid coal along the sides which act as abutments of the arch of strada spanning the roadway; and the weight of the rocks over a longwall face is transferred to the front abutment, that is, the solid coal ahead of the face and the back abutment, that is, the settled packs behind the face.

Acid Digestion: Dissolving mineral substances in acid solution.

Acid Mine Water: Mine water that contains free sulphuric acid, mainly due to the weathering of iron pyrites.

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.

Agitation: In metallurgy, the act or state of being stirred or shaken mechanically, sometimes accomplished by the introduction of compressed air.

Agitation Leaching: Leaching of gold from the host rock by agitating the ground ore in a cyanide solution.
Airtrack: A type of track mounted percussion drill.

Alluvial: Pertaining to sedimentary rocks transported and deposited by a river system and also unconsolidated, transported sediments.

Alluvial Deposits: Clay, sand, gravel, etc. removed from a parent rock by water and weathering agents and deposited at a distance.

Alluvial Gold: Gold transported and deposited by the river action and mined from the river sediments.

Anemometer: Instrument for measuring air velocity.

Anfo: An explosive made by mixing ammonium nitrate and fuel oil.

Angle of Dip: The angle that strata or mineral deposits are inclined to the horizontal plane. In most locations, earth movements subsequent to deposition of the strata have caused them to be inclined or folded.

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

Alloy: A composition consisting of two or more metals.
Angle of Draw: In coal mine subsidence, this angle is assumed to bisect the angle between the vertical and the angle of repose of the material and is 20° for flat seams. For dipping seams, the angle of break increases, being 35.8° from the vertical for a 40° dip. The main break occurs over the seam at an angle from the vertical equal to half the dip.

Angle of Repose: The maximum angle from horizontal at which a given material will rest on a given surface without sliding or rolling.

Anthracite: A hard, black coal containing a high percentage of fixed carbon and a low percentage of volatile matter.

Anticline: An upward fold or arch of rock strata.

Aquifer: A water-bearing bed of porous rock, often sandstone.

Arching: Fracture processes around a mine opening, leading to stabilization by an arching effect.

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

Ash: The inorganic residue remaining after a pulverised sample, especially coal, is incinerated under standard laboratory conditions.

Assay: In general, the determination of the quantity of a desired metal per unit mass of the material containing it. The term assay is usually restricted to materials containing precious metals.

Auger: A rotary drill that uses a screw device to penetrate, break, and then transport the drilled material (coal).
Auger Mining: A form of underground mining that uses an auger, which looks like a large carpenter’s wood drill. The auger bores into a coal seam and discharges coal out of the spiral onto a waiting conveyor belt. When mining is finished, the openings are back-filled. This method is usually employed to recover any additional coal left in deep overburden areas that cannot be reached economically by further contour or area mining.

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.
Mineral. Mining more. Mining right.
Back: The roof or upper part in any underground mining cavity.

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

Back Pressure: Pressure formed by the restriction of flow of either liquid or gas.

Bank Cubic Meter (BCM): A cubic meter of material in situ.

Bank Cubic Yard (BCY): A cubic yard of material in situ.

Bank / Bench Face: Specifically, usually a steep sloping mass of any earthy or rock material rising above the digging level from which the soil or rock is to be dug from its natural or blasted position in an open pit mine or quarry.

Bank Height / Bench Height: The vertical height of a bank measured between its highest point or crest and its toe at the digging level or bench.

Bank Slope / Bench Slope: The angle, measured in degrees of deviation from the horizontal, at which the rock material will stand in an excavated, terrace-like cut in an open – pit mine or quarry.
Barrel (BBL): 42 US Gallons or (159 litres).

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 in-rushes of water, gas, or from explosions or a mine fire.

Base Metal: Any of the more common chemically active metals, e.g. copper, lead, zinc, nickel, tin, etc. but excludes gold or silver.

Batter: Slope of open pit walls.

Bauxite: A rock made up of hydrous aluminium oxides; the most common aluminium ore.

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

Beam Building: The creation of a strong, inflexible beam by bolting or otherwise fastening together several weaker layers. In coal mining this is the intended basis for roof bolting.

Bearing: A surveying term used to designate direction. The bearing of a line is the acute horizontal angle between the meridian and the line. The meridian is an established line of reference. Azimuths are angles measured clockwise from any meridian.

Bearing Plate: A plate used to distribute a given load. In roof bolting, the plate used between the bolt head and the roof.
Bed: A stratum of coal or other sedimentary deposit.

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.

Bedrock: Solid rock mass exposed at the surface of the earth or overlain by weathered unconsolidated material and soils. It is also the firm base rock on which structures are anchored.
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 inby 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.

Bench: A ledge, which, in open – pit mines and quarries, forms a single level of operation above which mineral or waste materials are excavated from a continuous bank or bench face. The material or waste is removed in successive layers, each of which is a bench, several of which may be in operation simultaneously in different parts of, and at different elevations in an open – pit mine or quarry.

Benching: A method of working small quarries or open pits in steps or benches.

Bench Face Slope: The angle measured in degrees between the toe of the bench and the crest. Typically this slope is about 60 degrees or in the ratio of two units vertically to one horizontal. The material type and extent of blasting will influence the angle.
Bench Height: The vertical distance between the base of one bench and the base of the overlaying bench. The bench height is designed by the mine planner. The main constraint on height of a bench is usually the limiting thickness that can be handled by the drills and or loading equipment.

Berm: A horizontal shelf or ledge built into an embankment or sloping wall of an open pit or quarry to break the continuity of an otherwise long slope for the purpose of strengthening and increasing the stability of the slope or to catch or arrest slope slough material. A berm may also be used as a haulage road or serve as a bench above which material is excavated from a bank or bench face.

Binder: A streak of impurity in a coal seam.

Bentonite: A clay with great ability to absorb water and which swells accordingly.
Bit: The hardened and strengthened device at the end of a drill rod that transmits the energy of breakage to the rock. The size of the bit determines the size of the hole. A bit may be either detachable from or integral with its supporting drill rod.

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.

Blast Hole (Bore Hole): A hole drilled into rock to accommodate an explosive charge for blasting rock or ore.

Blast: The ignition of explosive charges in an underground mine, open cut mine or quarry to break up or fracture rock material.

Blasting Agent: Material or mixture consisting of fuel and oxidizer, used as an explosive. Ingredients are not classified as explosives.
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.

Block Caving: An inexpensive method of mining in which large blocks of ore are undercut, causing the ore to break or cave under its own weight.
Blow-Out: A sudden or violent escape of gas or oil (and sometimes water) from a drilling well when high pressure gas is encountered and preparation to prevent or to control the escape has not been made.

Bolt Torque: The turning force in ft-lbs applied to a roof bolt to achieve an installed tension.

Bolting: Drilling a hole, and inserting a bolt to strengthen the ceiling and walls of an underground mine.

Booster: An explosive or special character used in small quantities to improve the performance of another explosive. A high explosive used to initiate an explosive charge.

Borehole: Any deep or long drill-hole, usually associated with a diamond drill.

Borehole Mining: (BHM) is a remote operated method of extracting mineral resources through boreholes by means of high pressure water jets. This process can be carried-out from land surface, open pit floor, underground mine or floating platform or vessel through pre-drilled boreholes.

Bottom: Floor or underlying surface of an underground excavation.

Break Line: The line that roughly follows the rear edges of coal pillars that are being mined. The line along which the roof of a coal mine is expected to break.

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

Bridge Carrier: A rubber-tire-mounted mobile conveyor, about 10 meters long, used as an intermediate unit to create a system of articulated conveyors between a mining machine and a room or entry conveyor.
Bridge Conveyor: A short conveyor hung from the boom of mining or lading machine or haulage system with the other end attached to a receiving bin that dollys along a frame supported by the room or entry conveyor, tailpiece. Thus, as the machine boom moves, the bridge conveyor keeps it in constant connection with the tailpiece.

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

Brushing: Digging up the bottom or taking down the top to give more headroom in roadways.

Btu: British thermal unit. A measure of the energy required to raise the temperature of one pound of water one degree Fahrenheit.

Bug Dust: The fine particles of coal or other material resulting form the boring or cutting of the coal face by drill or machine.

Bulk Mining: Any large-scale, mechanised method of mining involving many thousands of tons of ore being brought to the surface per day.

Bullion: Metal formed into bars or ingots.

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

Burden: The volume of rock which lies within the zone of influence of a charge of explosive; the volume of rock to be broken by any hole or charge.

Butt Cleat: A short, poorly defined vertical cleavage plane in a coal seam, usually at right angles to the long face cleat.

Butt Entry: A coal mining term that has different meanings in different locations. It can be synonymous with panel entry, sub-main entry, or in its older sense it refers to an entry that is "butt" onto the coal cleavage (that is, at right angles to the face).

By-Product: A secondary metal or mineral product recovered in the treatment process.
Cage: In a mine shaft, the device, similar to an elevator car, that is used for hoisting personnel and materials.

Calorific Value: The quantity of heat that can be liberated from one pound of coal or oil measured in BTU's.

Channel Coal: A massive, non-caking block coal with a fine, even grain and a conchoidal fracture which has a high percentage of hydrogen, burns with a long, yellow flame, and is extremely easy to ignite.

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.

Cap Rock: An impervious rock which may act as a seal so hydrocarbons remain trapped in an underlying or adjacent reservoir.

Car: A railway wagon, especially any of the wagons adapted to carrying coal, ore, and waste underground.
Car-Dump: The mechanism for unloading a loaded car.

Carbide Bit: More correctly, cemented tungsten carbide. A cutting or drilling bit for rock or coal, made by fusing an insert of molded tungsten carbide to the cutting edge of a steel bit shank.

Carbon Dioxide: A colourless tasteless, odourless gas (CO2) widely found in nature. Its excessive presence in mines can cause breathing problems and with oxygen depletion, death.

Cast: A directed throw; in strip-mining, the overburden is cast from the coal to the previously mined area.

Certified: Describes a person who has passed an examination to do a required job.

Chain Conveyor: A conveyor on which the material is moved along solid pans (troughs) by the action of scraper crossbars attached to powered chains.

Chain Pillar: The pillar of coal left to protect the gangway or entry and the parallel airways.

Charge: The explosive or blasting agent used in a blast hole.

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

Charging Up: Filling up drill holes with explosives.

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.
Claim: An area of land or water used by a prospector or mining company for the purpose of exploration over a period of time. Claims are first staked out and then recorded in the appropriate state’s Department of Mines.

Clay: An extremely fine-grained natural earthy material composed primarily of hydrous aluminium silicates. Clay is plastic when sufficiently pulverised and wetted, rigid when dry, and vitreous when fired to a sufficiently high temperature.

Clay Vein: A body of clay-like material that fills a void in a coal bed.

Clean Coal: Processed coal suitable for marketing.

Clean Coal Technology: A number of innovative, new technologies designed to use coal in a more efficient and cost-effective manner while enhancing environmental protection. Several promising technologies include: fluidized-bed combustion, integrated gasification combined cycle, limestone injection multi-stage burner, enhanced flue gas desulfurization (or “scrubbing”), coal liquefaction and coal gasification.

Cleat: The vertical cleavage of coal seams. The main set of joints along which coal breaks when mined.

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 Blending: Coal that is mixed in predetermined and controlled quantities to produce a uniform feed or product.

Coal Dust: Particles of coal that can pass a No. 20 sieve.

Coal Gasification: The conversion of coal into a gaseous fuel.
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".

Coal Prep Plant: A place where coal is cleaned, sized and prepared for market.

Coal Reserves: Measured tonnages of coal that have been calculated to occur in a coal seam within a particular property.

Coal Resources: Total coal deposits, regardless of whether they can be mined or recovered. The United States is estimated to have 4 trillion tons of coal resources by the U.S. Geological Survey.

Coal Washing: The process of separating undesirable materials from coal based on differences in densities. Pyritic sulphur, or sulphur combined with iron, is heavier and sinks in water; coal is lighter and floats.

Coke: A hard, dry carbon substance produced by heating coal to a very high temperature in the absence of air.

Coking Coal: Coal which is suitable for making coal.

Collar: Top of shaft or raise or a drill hole.

Coal Miner: One who is engaged in the extraction of coal. In 2005, 81,000 coal miners in the United States produced about 6.3 tons of coal per hour each.
Comminution: The breaking, crushing, or grinding of coal, ore, or rock.

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).

Concentrate: The product of concentration in a treatment plant, in which the abundance of a particular mineral species is upgraded to the final product for shipment from the mine.

Concentrator: A milling plant that produces a concentrate of the valuable minerals or metals. Further treatment is required to recover the pure metal.

Cone Crusher: A machine which crushes ore between a gyrating cone or crushing head and an inverted, truncated cone known as a bowl.

Consortium: A group of companies, not normally related, working together on a particular project.

Contact: The place or surface where two different kinds of rocks meet. Applies to sedimentary rocks, as the contact between a limestone and a sandstone, for example, and to metamorphic rocks; and it is especially applicable between igneous intrusions and their walls.
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.

Controlled Blasting: Blasting patterns and sequences designed to achieve a particular objective. Cast blasting, where the muck pile is cast in a particular direction, and deck blasting, where holes are loaded once but blasted in successive blast days apart, are examples.

Conventional Mining: The first fully-mechanized underground mining method involving the insertion of explosives in a coal seam, the blasting of the seam, and the removal of the coal onto a conveyor or shuttle car by a loading machine.

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.

Core: The long cylindrical piece of rock, brought to the surface during some form of core drilling.

Core Sample: A cylinder sample generally 1-5" in diameter drilled out of an area to determine the geologic and chemical analysis of the overburden and coal.

Coupling: Tube which connects the shank to the steel.
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.

Crop Coal: Coal at the outcrop of the seam. It is usually considered of inferior quality due to partial oxidation, although this is not always the case.

Crossbar: The horizontal member of a roof timber set supported by props located either on roadways or at the face.

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.

Crude Oil: Oil that has been produced from a reservoir.

Crude Steel: Unrefined steel.

Crusher: A machine for crushing rock or other materials. Among the various types of crushers are the ball mill, gyratory crusher, handsel mill, hammer mill, jaw crusher, rod mill, rolls, stamp mill, and tube mill.

Cut-and-Fill: A method of stoping in which ore is removed in slices, or lifts, and then the excavation is filled with rock or other waste material (backfill) before the subsequent slice is extracted.
Cut-and-Fill Stoping: In cut and fill stoping, the ore body is retrieved in horizontal slices beginning at the very bottom and advancing upwards towards the surface. Ramps are excavated to connect the surface to the underground ore body. Drifts are excavated to come in contact with the ore slices. The slices are drilled using a jumbo, blasted by charging the drill holes with explosives, and ore is removed by using dump trucks or LHD vehicles. The ore is dumped into an ore pass, an inclined tunnel where ore is transported to a lower elevation in the mine. The ore is picked up at the other end of the ore pass by a LHD to be transported out of the mine through a ramp. Once a slice is completely mined out, the empty space is partially backfilled hydraulically. The backfill material used can be a mixture of sand and rocks, waste rock with cement, or dewatered mill tailings. The backfill underground serves to keep the mine walls stable and also as the floor for mining the next slice. Mining continues upwards towards the surface until the ore body is depleted.
Cut-Off Grade: The unit metal content at which "ore" is separated from "waste". This is an economic distinction.

Cutter; Cutting Machine: A machine, usually used in coal, that will cut a 10- to 15-cm slot. The slot allows room for expansion of the broken coal. Also applies to the man who operates the machine and to workers engaged in the cutting of coal by prick or drill.

Cyanidation, Cyanide Leach: A method of extracting exposed gold or silver grains from crushed or ground ore by dissolving it in a weak cyanide solution. May be carried out in tanks inside a mill or out in the open in heaps of ore. Also known as leaching.

Cyanide: A chemical species containing carbon and nitrogen used to dissolve gold and silver from ore.

Cycle Mining: A system of mining in more than one working place at a time, that is, a miner takes a lift from the face and moves to another face while permanent roof support is established in the previous working face.

Cyclone: Equipment for separating course and fine particles by centrifugal force.
Mining safely. Mining more. Mining right.
Deposit Types:
- Kimberlite pipes – formed at least 93 miles (150 km) below the surface.
- Epithermal – formed by hydrothermal volcanic activity pushing magma through vents.
- Laterites – deeply weathered mixture of oxide, hydroxide minerals, and clays.
- Lode – usually narrow and inconsistent, but important sources of precious metals.
- Magmatic – formed when molten rock cools, minerals crystallize and sink to the base.
- Massive – homogenous mineralization that conforms to the host rock’s structure.
- Placer – minerals eroded, transported, and deposited in a sedimentary bed.
- Porphyry – formed by igneous activity with mineralization forming veins.

Deck: The area around the shaft collar where miners and materials enter the cage to be lowered underground.

Demonstrated Reserves: A collective term for the sum of coal in both measured and indicated resources and reserves.

Density: The mass of material per unit volume expressed as kg/m³.

Depletion: The steadily declining amount of ore in a property resulting from production. Minerals are considered a depleting resource because once mined, they cannot be replaced. An accounting device, used primarily in tax computations which recognizes the consumption and its diminishing years of future mining.

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.
Depth: The word alone generally denotes vertical depth below the surface. In the case of incline shafts and boreholes it may mean the distance reached from the beginning of the shaft or hole, the borehole depth, or the inclined depth.

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.

Diamond: The hardest known mineral, composed of pure carbon; low-quality diamonds are used to make bits for diamond drilling in rock.

Diffusion: Blending of a gas and air, resulting in a homogeneous mixture. Blending of two or more gases.
Diffuser Fan: A fan mounted on a continuous miner to assist and direct air delivery from the machine to the face.

Digging Height: Maximum safe digging height of an excavator.

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: Waste material adjacent to the ore which is unavoidably mined with the ore. The amount of dilution is a function of equipment type, size, physical differences of ore and waste and operator skills.

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.

Directional Drilling: A technique where a well is deliberately drilled on an angle to reach a particular resource.

Dragline: A large excavation machine used in surface mining to remove overburden (layers of rock and soil) covering a coal seam. The dragline casts a wire rope-hung bucket a considerable distance, collects the dug material by pulling the bucket toward itself on the ground with a second wire rope (or chain), elevates the bucket, and dumps the material on a spoil bank, in a hopper, or on a pile.
Drainage: The process of removing surplus ground or surface water either by artificial means or by gravity flow.

Draw Slate: A soft slate, shale, or rock from approximately 1 cm to 10 cm thick and located immediately above certain coal seams, which falls quite easily when the coal support is withdrawn.

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 and Fill Mining: A type of underground mining where a horizontal underground opening follows along the length of a vein or rock formation as opposed to a crosscut which crosses the rock formation. The drift is filled with backfill material as it progresses forward when the vein or rock formation dips upwards.

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.

Drop Cut: The initial cut made in the floor of an open-pit mine or quarry for the purpose of developing a bench at a level below the floor.

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

Dump: To unload; specifically, a load of coal or waste; the mechanism for unloading, e.g. a car dump (sometimes called tippie); or, the pile created by such unloading, e.g. a waste dump (also called heap, pile, tip, spoil pike, etc.).
Eluvial: Used to describe decomposed (weathered) rock debris not far removed from the place of formation, which may contain a valuable constituent material as residue.

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.

Erosion: The breaking down and subsequent removal of either rock or surface material by wind, rain, wave action, freezing and thawing and other processes.

Excavator: Open pit mining machine that mines by digging, lifting and dumping bucket loads of material into a truck, generally articulated by hydraulics.

Exploder: A portable electrical energy source used to initiate electric detonators.

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.
Mining safely. Mining more. Mining right.
Face: The exposed area of a coal bed from which coal is being extracted.

Face Cleat: The principal cleavage plane or joint at right angles to the stratification of the coal seam.

Face Conveyor: Any conveyor used parallel to a working face which delivers coal into another conveyor or into a car.

Factor of Safety: The ratio of the ultimate breaking strength of the material to the force exerted against it. If a rope will break under a load of 6000 lbs., and it is carrying a load of 2000 lbs., its factor of safety is 6000 divided by 2000 which equals 3.

Failure: Failure in rocks means exceeding the maximum strength of the rock or exceeding the stress or strain requirement of a specific design by an applied load.

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.

Fault: A slip-surface between two portions of the earth’s surface that have moved relative to each other. A fault is a failure surface and is evidence of severe earth stresses.

Fault Zone: A fault, instead of being a single clean fracture, may be a zone hundreds or thousands of feet wide. The fault zone consists of numerous interlacing small faults or a confused zone of gouge, breccia, or mylonite.

Feasibility Study: An assessment of the legal, environmental, social, cultural heritage and governmental aspects of a proposed project as well as the technical aspects of mining, processing and marketing the product is coupled with financial analysis to determine the viability of the project.

Feeder: A machine that feeds coal onto a conveyor belt evenly.
Ferrous: Mineral containing iron; "non-ferrous" is a standard term for other minerals.

Fill: Any material that is put back in place of the extracted ore to provide ground support.

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.

Firing / Footwall: Exploding holes charged with explosives.
   1. The lower wall of an incline or horizontal fault.
   2. The junction of the ore body and the country rock on the lower side of the lode, ie the wall upon which the ore body may be considered to be resting.

Fissure: An extensive crack, break, or fracture in the rocks.

Fixed Carbon: The part of the carbon that remains behind when coal is heated in a closed vessel until all of the volatile matter is driven off.

Flat-Lying: Said of deposits and coal seams with a dip up to 5 degrees.

Flight: The metal strap or crossbar attached to the drag chain-and-flight conveyor.

Flitch: Mining level in an open pit.

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.

Flue Gas Desulfurization: Any of several forms of chemical/physical processes that remove sulfur compounds formed during coal combustion. The devices, commonly called "scrubbers," combine the sulfur in gaseous emissions with another chemical medium to form inert "sludge" which must then be removed for disposal.
Fluidized Bed Combustion: A process with a high degree of ability to remove sulfur from coal during combustion. Crushed coal and limestone are suspended in the bottom of a boiler by an upward stream of hot air. The coal is burned in this bubbling, liquid-like (or "fluidized") mixture. Rather than released as emissions, sulfur from combustion gases combines with the limestone to form a solid compound recovered with the ash.

Fly Ash: The finely divided particles of ash suspended in gases resulting from the combustion of fuel. Electrostatic precipitators are used to remove fly ash from the gases prior to the release from a power plant's smokestack.

Footwall or Hanging Wall: The "footwall" is the side of the pit underlying a sloping ore body or steeply dipping seam. The "hanging wall" is on the side overlying the ore body if you imagine all of the ore removed, the remaining waste would be overhanging. The term originated in underground mining but is also used today in open-pit mining.

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.

Fossil Fuel: Any naturally occurring fuel of an organic nature, such as coal, crude oil and natural gas.

Fracture: A general term to include any kind of discontinuity in a body of rock if produced by mechanical failure, whether by shear stress or tensile stress. Fractures include faults, shears, joints, and planes of fracture cleavage.

Fragmentation: General term which describes the size of individual pieces of rock after blasting.

Friable: Easy to break, or crumbling naturally. Descriptive of certain rocks and minerals.

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.
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Gasification: Any of various processes by which coal is turned into low, medium, or high Btu gases.

Gathering Belt: Same as Gathering Conveyor.

Gathering Conveyor: Any conveyor which is used to gather coal from other conveyors and deliver it either into mine cars or onto another conveyor. The term is frequently used with belt conveyors placed in entries where a number of room conveyors deliver coal onto the belt.

Geological Plans: A set of plans representing the characteristics of the deposit. Structure plans show absolute elevation and typically represent the controlling geological structure of weathered surface. Cross sections typically illustrate the trend of geology across the deposit. Longitudinal sections are perpendicular to the cross section. Contour plans show attributes or equal value, such as gold grade, sulphur content or economic value. These plans are a fundamental part of the mine design and scheduling process.

Global Climate Change: This term usually refers to the gradual warming of the earth caused by the greenhouse effect. Many scientists believe this is the result of man-made emissions of greenhouse gases such as carbon dioxide, chlorofluorocarbons (CFC) and methane, although there is no agreement among the scientific community on this controversial issue.

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.

Grade: The unit metal content in rock. Expressed in percentage, as grams per ton or oz. per ton.
   1. The slope of a surface.

Grade Control: A general term which describes the many measures required to maximize mining recovery of the valuable mineral whilst minimizing dilution.

Granite: In petrology, that factor of the texture of a rock composed of distinct particles or crystals which depends upon their absolute size.
Grizzly: Course screening or scalping device that prevents oversized bulk material from entering a material transfer system; constructed of rails, bars, beams, etc.

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.

Ground Pressure: The pressure to which a rock formation is subjected by the weight of the superimposed rock and rock material or by diastrophic forces created by movements in the rocks forming the earth’s crust. Such pressures may be great enough to cause rocks having a low compressional strength to deform and be squeezed into and close a borehole or other underground opening not adequately strengthened by an artificial support, such as casing or timber.

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

Gyrate Crusher: A machine that crushes ore between an eccentrically – mounted crushing cone and a fixed crushing throat. Typically has a higher capacity than a jaw crusher.
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Hanging Wall: The mass of rock forming the overlying side of a fault plane, vein, lode, orebody, bed of ore or stope.

Hard Rock Deposits: Used here to describe non-alluvial gold deposits.

Hard Cap: A hard, tough rock of limited thickness overlying softer material.

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.

Haulroad, Haul Road: Roads used by the main haulage trucks to move waste and ore out of the pit. Because of the size and weight of open-pit mining equipment these roads must be specially constructed and usually kept at less than 10% of climb in direction of loaded travel. By contrast access roads are used only by light vehicles (support equipment) and are designed to a much lower standard of construction.

Hazard: Something with the potential to cause harm (also called a fault).
Head frame: The structure surmounting the shaft which supports the hoist rope pulley, and often the hoist itself.

Heading: A vein above a drift. An interior level or airway driven in a mine. In longwall workings, a narrow passage driven upward from a gangway in starting a working in order to give a loose end.

Head Section: A term used in both belt and chain conveyor work to designate that portion of the conveyor used for discharging material.

Heap Leaching: A low-cost technique for mineral excavation, generally used on low-grade ores, where ore is loaded onto an impermeable surface and irrigated with a solvent solution to dissolve the metal content in the ore.

Heaving: Applied to the rising of the bottom after removal of the coal; a sharp rise in the floor is called a "hogsback".

High Grade: Rich ore. As a verb, it refers to the selective mining of the best or highest grade ore in a mineral deposit.

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.
Highwall Miner: A highwall mining system consists of a remotely controlled continuous miner which extracts coal and conveys it via augers, belt or chain conveyors to the outside. The cut is typically a rectangular, horizontal cut from a highwall bench, reaching depths of several hundred feet or deeper.

Hopper Car: Open freight cars with a floor sloping to one or more hinged doors for discharging bulk materials such as coal. A car for coal, gravel, etc., shaped like a hopper with an opening to discharge contents.

Hoist: A drum on which hoisting rope is wound in the engine house

Hoisting: The vertical transport coal or material.

Horizon: In geology, any given definite position or interval in the stratigraphic column or the scheme of stratigraphic classification; generally used in a relative sense.

Horseback: A mass of material with a slippery surface in the roof; shaped like a horse’s back.
Hydraulic: Of or pertaining to fluids in motion. Hydraulic cement has a composition which permits it to set quickly under water. Hydraulic jacks lift through the force transmitted to the movable part of the jack by a liquid.

Hydrocarbon: A family of chemical compounds containing carbon and hydrogen atoms in various combinations, found especially in fossil fuels.
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Igneous Rock: Rock which has originated below the earth's surface and has solidified from a hot, molten condition.

Immediate Roof: The roof strata immediately above the coal bed, requiring support during the excavation of coal.

Incline or Decline: Any entry to a mine that is not vertical (shaft) or horizontal (adit). Often incline is reserved for those entries that are too steep for a belt conveyor (+17 degrees -18 degrees), in which case a hoist and guide rails are employed. A belt conveyor incline is termed a slope. Alt: Secondary inclined opening, driven upward to connect levels, sometimes on the dip of a deposit; also called "inclined shaft".

Inby: Toward or in the direction of the working face and away from the mine entrance. Opposite of outby.

Initiate: Act of detonating high explosives by means of a detonator or by detonating cord.

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

Intermediate Section: A term used in belt and chain conveyor network to designate a section of the conveyor frame occupying a position between the head and foot sections.

In-Situ: In the natural or original position. Applied to a rock, soil, or fossil when occurring in the situation in which it was originally formed or deposited.
Iron Ore: Iron Ore has minerals from which metallic iron (Fe) can be extracted. The iron itself is usually found in the form of magnetite (Fe₃O₄) or hematite (Fe₂O₃), both of which are iron oxides. However, as much of the pure magnetite and hematite ore has already been mined, modern iron mines rely on aggregate ore such as taconite, which must be processed to remove non-iron-bearing components prior to smelting. Iron mines therefore produce tremendous amounts of waste. Almost all (98%) iron ore is used in steelmaking.

Ironstone: A broad term for a rock consisting mainly of iron oxides.

Isanol: An explosive containing ammonium nitrate, polystyrene and vegetable oil. It has less strength than ANFO.

Ith Rig: An in-the-hole hammer pneumatic rock drilling machine.
Notes
Jackleg: A percussion drill used for drifting or stopping that is mounted on a telescopic leg which has an extension of about 2.5 m. The leg and machine are hinged so that the drill need not be in the same direction as the leg.

Jackrock: A caltrop or other object manufactured with one or more rounded or sharpened points, which when placed or thrown present at least one point at such an angle that it is peculiar to and designed for use in puncturing or damaging vehicle tires. Jackrocks are commonly used during labor disputes.

Jaw Crusher: A primary crusher in which large lumps of ore or rock are broken by the crushing action of moving steel jaws to finer sizes for further crushing and grinding.

Job Safety Analysis (J.S.A.): A job breakdown that gives a safe, efficient job procedure.

Joint: A divisional plane or surface that divides a rock and along which there has been no visible movement parallel to the plane or surface.
Jumbo: A drill that is capable of drilling more than one hole at a time and is especially useful in preparation for blasting.
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Notes

K
Kerf: The undercut of a coal face.

Key Block: A block whose removal would cause the surrounding blocks to fall out.

Kimberlite: A hybrid volatile-rich potassic ultrabasic igneous rock (a variety of peridotite) intruded from the mantle and occurring at or near the surface as a cone-shaped volcanic pipe or as sheet-like dykes or sills, the most common host rock of diamonds.
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.

Leach Pad: A leveled and compacted surface, prepared for the purpose of heap leaching with an impermeable layer to direct the liquid to the collection point. May be reusable or non-reusable.

Life of Mine (LOM): Number of years that the operation is planning to mine and treat ore, and is taken from the current mine plan.

Lift: The amount of coal obtained from a continuous miner in one mining cycle.

Liquefaction: The process of converting coal into a synthetic fuel, similar in nature to crude oil and/or refined products, such as gasoline.

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

Load Haul Dump: A vehicle with a large bucket on the front used for transporting ore to crushing stations and mucking.
Loading Machine: Any device for transferring excavated material into the haulage equipment.

Loading Pocket: Transfer point at a shaft where bulk material is loaded by bin, hopper, and chute into a skip.

Long Ton: 2240 lb. Avoirdupois (compared with a short ton which is 2000 lb. And a metric ton (ton) which is 2204.6 lb).

Long Hole Draw Point Mining: Long Hole and Draw Point Mining is a type of underground mining where horizontal underground drifts are cut across sections of the ore body. Smaller drifts or crosscut drifts are cut into the rock along these main drifts and a series of vertical long holes are drilled into the ore bearing rock formation which are eventually filled with dynamite and exploded in a sequential implosion like order. This causes the ore to fall to the lower horizontal crosscuts which then serve as draw points. There are a number of draw points which are mucked-out by LHD's, dumped in to an ore pass which leads to an underground crusher. The crushed ore is then fed to a skip at a loading pocket via a conveyor belt and hoisted to the surface.
Longwall Mining: One of three major underground coal mining methods currently in use. Employs a steel plow, or rotation drum, which is pulled mechanically back and forth across a face of coal that is usually several hundred feet long. The loosened coal falls onto a conveyor for removal from the mine.

Loose Coal: Coal fragments larger in size than coal dust.

Low Voltage: Up to and including 660 volts by federal standards.
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**M**

| **Magma:** | The molten material deep in the earth from which rocks are formed. |
| **Magazine:** | A bulk storage area for explosives and/or detonators. |
| **Magnetite:** | Black, magnetic iron ore, an iron oxide. |
| **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 Car:** | A carrier of mine personnel, by rail or rubber tire, to and from the work area. |
| **Manhole:** | A safety hole constructed in the side of a gangway, tunnel, or slope in which miner can be safe from passing locomotives and car. Also called a refuge hole. |
| **Man Trip:** | A carrier of mine personnel, by rail or rubber tire, to and from the work area. |
| **Manway:** | An entry used exclusively for personnel to travel from the shaft bottom or drift mouth to the working section; it is always on the intake air side in gassy mines. Also, a small passage at one side or both sides of a breast, used as a traveling way for the miner, and sometimes, as an airway, or chute, or both. |
Marble: A metamorphic rock derived from the recrystallization of limestone under intense heat and pressure.

Mass: The quantity of matter in a body or volume of any material. The unit of mass is the lb. or kg.

Measured Coal Resources: Coal for which estimates of the rank, quality, and quantity have been computed from sample analyses and measurements from closely spaced and geologically well-known sample sites, such as outcrops, trenches, mine workings, and drill holes. The points of observation and measurement are so closely spaced and the thickness and extent of coals are so well defined that the tonnage is judged to be accurate within 20 percent of true tonnage. Although the spacing of the points of observation necessary to demonstrate continuity of the coal differs from region to region according to the character of the coal beds, the points of observation are no greater than ½ mile apart. Measured coal is projected to extend as a ¼-mile wide belt from the outcrop or points of observation or measurement.
Meridian: A surveying term that establishes a line of reference. The bearing is used to designate direction. The bearing of a line is the acute horizontal angle between the meridian and the line. Azimuths are angles measured clockwise from any meridian.

Metamorphic Rock: Rocks that have undergone a change in texture or composition as the result of heat and / or pressure.

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.

Mine Mouth Electric Plant: A coal burning electric-generating plant built near a coal mine.
Mine Shaft: A vertical or inclined excavation used to access an underground mining facility. On the surface above the shaft stands a building known as the pit head (or poppet head or head frame), which historically contained a winding engine and in modern times contains an electric hoist controller. This raises and lowers the conveyances within the shaft. A mine shaft is split into multiple compartments. The largest compartment is used for the cage. The cage is the conveyance used for moving workers and supplies from the surface to underground. It functions in a similar manner to an elevator. The second compartments are the skip compartments. The skip is the conveyance used to transport ore from the underground working to the surface. In smaller mining operations there may not be a skip compartment and the skip would be mounted underneath the cage conveyance.

Mine Shaft Cont: The third compartment is used for an emergency means of egress, it may house an auxiliary cage or a system of ladders which extend the length of the shaft. An additional compartment houses the mine services, such as high voltage cables and pipes for transfer of water, compressed air or diesel fuel. The horizontal workings extending from the central shaft are called drifts, galleries or levels. This is contrasted to drift mining.

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.

Mineral: An inorganic compound occurring naturally in the earth's crust, with a distinctive set of physical properties, and a definite chemical composition.

Mining Engineer: A person qualified by education, training, and experience in mining engineering. A trained engineer with knowledge of the science, economics, and arts of mineral location, extraction, concentration and sale, and the administrative and financial problems of practical importance in connection with the profitable conduct of mining.
Mining Plans: These plans represent the regular benches planned to be excavated, or actually excavated by the mining equipment. Parts of these mining plans show geological features, but the main purpose of the plan is to show design features such as mining limits, haulroad and access roads and haulage ramps. The mining plans are an integral part of the scheduling process as they trace out the conversion of geological data into mining blocks having special relationships and production and economic attributes.

Mining Recovery: The reverse of dilution. This recognizes that not all of the material that was planned to be mined actually is mined. Sometimes material is not possible to mine because of physical constraints, these are mining losses. This should not be confused with metallurgical recovery which is a function of the processing plant.

Misfire: A charge or part of a charge which for one of any number of reasons has not exploded. Specific safety procedures must be observed.

MSHA: Mine Safety and Health Administration; the federal agency which regulates coal mine health and safety in the USA.

Mud Cap: A charge of high explosive fired in contact with the surface of a rock after being covered with a quantity of wet mud, wet earth, or sand, without any borehole being used. Also termed adobe, dobie, and sandblast (illegal in coal mining).

Muck: Ore or rock that has been broken by blasting.

Muck Sample: A representative piece of ore that is taken from a muck pile and then assayed to determine the grade of the pile.

Mullock: Waste rock or waste produced during the mining process.
Native Metal: A metal occurring in nature in pure form, uncombined with other elements.

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

Net Present Value (NPV): The sum of the present values of all the net cash flows to be received from an investment.

Nickel: Ni – the symbol for nickel on the Periodic Table. A hard bright, silver-white metallic element of the iron group that is malleable, ductile, and resistant to corrosion. It is used in alloys to provide corrosion and heat resistance for products in the iron, steel and aerospace industries. Nickel is used as a catalyst in the chemical industry.

Nip: Device at the end of the trailing cable of a mining machine used for connecting the trailing cable to the trolley wire and ground.

Nonel: Non-electric detonator.

Nugget: Piece of gold found in alluvial deposits at least large enough to be readily picked out by hand.
Opencast / Open-Cut / Open-Pit: A mine working open to the surface – similar to a quarry. Opencast pits are started along an outcrop and continued downhill until the thickness of overburden prevents further economic exploration. The operations are highly mechanized, and may be divided into:

1. Removal of overburden
2. Removal of exposed ore

The extent of economic opencast mining depends on the ratio of the thickness of overburden to that of the ore. The quality of the deposit will also influence the ratio.

Ore: Rock containing minerals which can be mined at a profit.

Ore body: A solid, naturally occurring mineral aggregate of economic importance, from which one or more valuable constituents may be recovered by treatment.

Ore Pass: A vertical or incline passage that is used for transporting ore to a lower level or hoist.

Outcrop: Coal that appears at or near the surface.
Outside Dump: If possible, mining plans try to dump unwanted waste material back into the worked out pit area (an in-pit dump), because this is usually less costly and it aids rehabilitation. An outside dump — any dump located beyond the pit limits — must be built at the start of the mine (even if it may be rehandled back into the worked pit later), and often at other times throughout the mine life. Many metalliferous mines never reach the point where they can dump waste back into the worked out pit.

Overall Pit Slope Angle: The overall angle between the toe of the bench for the lowest bench in the mine and the crest in the uppermost bench at the surface. This overall angle may be limited by geological characteristics (the base of the ore zone) or geotechnical (the maximum safe slope angle). The overall angle allows for safety berms, haulroads and access roads.
Overburden: 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.
Notes
Panic Bar: A switch, in the shape of a bar, used to cut off power at the machine in case of an emergency.

Parting: (1) A small joint in coal or rock; (2) a layer of rock in a coal seam; (3) a side track or turnout in a haulage road.

Pattern: A dimensioned plan of holes to be drilled for blasting a face.

Peat: The partially decayed plant matter found in swamps and bogs, one of the earliest stages of coal formation.

Percentage Extraction: The proportion of a coal seam which is removed from the mine. The remainder may represent coal in pillars or coal which is too thin or inferior to mine or lost in mining. Shallow coal mines working under townships, reservoirs, etc., may extract 50%, or less, of the entire seam, the remainder being left as pillars to protect the surface. Under favourable conditions, longwall mining may extract from 80 to 95% of the entire seam. With pillar methods of working, the extraction ranges from 50 to 90% depending on local conditions.

Percussion Drill: A drill, usually air powered, that delivers its energy through a pounding or hammering action.

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.

Permit: As it pertains to mining, a document issued by a regulatory agency that gives approval for mining operations to take place.

Piggy-Back: A bridge conveyor.

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

Pillar Mining: The mining of scattered blocks of reef of variable size usually associated with older shafts, which have been left behind and are now being mined in the final clean-up stage of the mine’s orebody.
Pillar Robbing: The systematic removal of the coal pillars between rooms or chambers to regulate the subsidence of the roof. Also termed "bridging back" the pillar, "drawing" the pillar, or "pulling" the pillar.

Pinch: A compression of the walls of a vein or the roof and floor of a coal seam so as to "squeeze" out the coal.

Pinch: A compression of the roof and floor of a coal seam so as to "squeeze" out the coal. Pinning: Roof bolting.

Pit: Any open cut mine or quarry.
Pit Limits: The plan extent of mining after all ore and waste has been taken out. The limits are a function of economics and physical factors such as faulting, lease boundaries etc. Even if you do not intend to reach the mining limits in 30 years for example, it is important to know where the limits are. As well as determining where the final pits are likely to be, it is also important to know where they are likely not to be, and where they are likely to change with changing resource economics. To avoid an embarrassing relocation, surface facilities should preferably be positioned adjacent to a pit limit that is insensitive to changing economic conditions.

Pit Slope: The angle at which a wall of an open pit or cut stands as measured along an imaginary plane extended along the crest of the berms or from the slope crest to its toe.

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

Placer Mining: The extraction of heavy minerals from a placer deposit by concentration in running water. It includes ground sluicing, panning, shoveling gravel into a sluice, scraping by power scraper and excavation by draglines, dredge or other mechanized equipment.
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.

Portal Bus: Track-mounted, self-propelled personnel carrier that holds 8 to 12 people.

Post: The vertical member of a timber set.

Preparation Plant: A place where coal is cleaned, sized, and prepared for market.

Pre-Stripping: Removal of waste rock before mining of ore in an open pit.

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

Prills: Cellular sub-globular AN particles formed by spraying AN solution against a stream of air.

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.

Production: The winning of material from the ground.

Prop: Coal mining term for any single post used as roof support. Props may be timber or steel; if steel--screwed, yieldable, or hydraulic.
Pyrite: A hard, heavy, shiny, yellow mineral, FeS2 or iron disulfide, generally in cubic crystals. Also called iron pyrites, fool's gold, sulfur balls. Iron pyrite is the most common sulfide found in coal mines.
Notes

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Quartz: Common rock-forming mineral species composed of crystalline silica (SiO2).

Quartzite: A granulose metamorphic rock consisting essentially of quartz, formed by the transformation of a sandstone by heat and pressure.
Raise: A secondary or tertiary inclined opening, vertical or near-vertical opening driven upward from a level to connect with the level above, or to explore the ground for a limited distance above one level.

Raise Boring: Method of underground excavation by drilling upwards.

Raise or Rise: A secondary or tertiary inclined opening, vertical or near vertical opening driven upward from a level to connect with the level above, or to explore the ground for a limited distance above one level.

Ramp: A secondary or tertiary inclined opening, driven to connect levels, usually driven in a downward direction, and used for haulage.
Ranks of Coal: The classification of coal by degree of hardness, moisture and heat content. “Anthracite” is hard coal, almost pure carbon, used mainly for heating homes. “Bituminous” is soft coal. It is the most common coal found in the United States and is used to generate electricity and to make coke for the steel industry. “Sub-bituminous” is a coal with a heating value between bituminous and lignite. It has low fixed carbon and high percentages of volatile matter and moisture. “Lignite” is the softest coal and has the highest moisture content. It is used for generating electricity and for conversion into synthetic gas. In terms of Btu or “heating” content, anthracite has the highest value, followed by bituminous, sub-bituminous and lignite.
Raw Coal: Run of Mine (ROM) coal as it is mined from the earth prior to processing.

Reclamation: The restoration of land and environmental values to a surface mine site after the coal is extracted. Reclamation operations are usually underway as soon as the coal has been removed from a mine site. The process includes restoring the land to its approximate original appearance by restoring topsoil and planting native grasses and ground covers.

Recovered Grade: The recovered mineral content per unit of ore treated.

Recovery: The proportion or percentage of coal or ore mined from the original seam or deposit.

Refining: The final purification process of a metal or mineral.

Regulator: Device (wall, door) used to control the volume of air in an air split.

Reserve: That portion of the identified coal resource that can be economically mined at the time of determination. The reserve is derived by applying a recovery factor to that component of the identified coal resource designated as the reserve base.

Resin Bolting: A method of permanent roof support in which steel rods are grouted with resin.
Resources: Concentrations of coal in such forms that economic extraction is currently or may become feasible. Coal resources broken down by identified and undiscovered resources. Identified coal resources are classified as demonstrated and inferred. Demonstrated resources are further broken down as measured and indicated. Undiscovered resources are broken down as hypothetical and speculative.

Retreat Mining: A system of robbing pillars in which the robbing line, or line through the faces of the pillars being extracted, retreats from the boundary toward the shaft or mine mouth.

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

Return Idler: The idler or roller underneath the cover or cover plates on which the conveyor belt rides after the load which it was carrying has been dumped at the head section and starts the return trip toward the foot section.

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.

Rider: A thin seam of coal overlying a thicker one.

Ripper: A coal extraction machine that works by tearing the coal from the face or attachment on rear of mining machine.
Rob: To extract pillars of coal previously left for support.

Robbed Out Area: Describes that part of a mine from which the pillars have been removed.

Rock: classification includes: Igneous – rock formed by solidification of molten volcanic material, Sedimentary – rock formed from soil / plant / animal remains that are hardened by pressure, time, and deposits of natural cements and Metamorphic – rocks that were originally igneous or sedimentary that have been altered by extreme heat and pressure.

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.
Roll Over Protection (ROPS): A framework, safety canopy, or similar protection for the operator when equipment overturns.

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 gal 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 Jack: A screw- or pump-type hydraulic extension post made of steel and used as temporary roof support.

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

Roof Sag: The sinking, bending, or curving of the roof, especially in the middle, from weight or pressure.

Roof Stress: Unbalanced internal forces in the roof or sides, created when coal is extracted.
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.

Roof Trusses: A combination of steel rods anchored into the roof to create zones of compression and tension forces and provide better support for weak roof and roof over wide areas.

Room and Pillar Mining: (coal) A method of underground mining in which approximately half of the coal is left in place to support the roof of the active mining area. Large "pillars" are left while "rooms" of coal are extracted. (hardrock) Ramps are excavated to connect the surface to the underground ore body. Drifts (horizontal tunnels) are excavated at different elevations to surround the ore body. Next, stopes are mined to gain access to the ore. All tunnels are excavated by drilling and blasting. Jumbos are in charge of drilling the holes in the rocks and filling them with explosives.

The loose rocks, also called muck is transported by either trucks or LHD vehicles back up to the surface for either waste disposal or processing. As mucking progresses, rooms are cut into the ore body. In order to provide safe roof support for mining, pillars of material around the rooms are left standing to hold up the rock ceiling above. Some parts of the mine roof can be particularly weak and fragile. In addition to pillar support, a jumbo is then brought back in for rock bolting of the roof to ensure safety. When all the ore in the stopes has been transported up to the surface, some pillars can be removed, since they still have valuable mineral content, while some must be left standing to provide active support for the ceiling. In some room and pillar mines, pillars are all excavated as mining nears completion, to allow the natural collapse of the roof.
Room Neck: The short passage from the entry into a room.

Round: Planned pattern of drill holes fired in sequence in tunneling, shaft sinking, or stopping. First the cut holes are fired, followed by relief, lifter, and rib holes.

Royalty: The payment of a certain stipulated sum on the mineral produced.

Rubbing Surface: The total area (top, bottom, and sides) of an airway.

Run-of-Mine or ROM: Run-of-mine (ROM) refers to ore after it has been mined, with quantities and quality characteristics accounting for losses and dilution. Planning adjustments to account for likely dilution involve discrete steps. In-situ geological material is converted to mineable material, by allowing for weathered zones, lease boundaries, yield or quality cut-offs, thickness criteria and economic criteria.
Run-of-Mine (cont): Run-of-mine ore characteristics allow for mining losses and dilution. Run-of-mine characteristics are converted to estimated production characteristics by allowing for plant efficiency, recoveries, and other adjustments. These steps are an important process in the conversion of, or build up of a database fully reflecting the characteristics of the ore as it passes from an undisturbed state in the ground, until it leaves the mine site in some marketable form.

The Steps in the conversion:
Safety Fuse: A train of powder enclosed in cotton, jute yarn, or waterproofing compounds, which burns at a uniform rate; used for firing a cap containing the detonation compound which in turn sets off the explosive charge.

Safety Lamp: A lamp with steel wire gauze covering every opening from the inside to the outside so as to prevent the passage of flame should explosive gas be encountered.

Sampling: Cutting a representative part of an ore (or coal) deposit, which should truly represent its average value.

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

Sapphire: A flawless crystal of corundum.
Scaling: Removal of loose rock from the roof or walls. This work is dangerous and a long bar (called a scaling bar) is often used.

Schedule: Plan of future events, usually numeric.

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

Screen: A large sieve for grading or sizing.

Scrubber: Any of several forms of chemical/physical devices that remove sulfur compounds formed during coal combustion. These devices, technically known as flue gas desulfurization systems, combine the sulfur in gaseous emissions with another chemical medium to form inert "sludge," which must then be removed for disposal.

Seam: A stratum or bed of coal.

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.
Sedimentary: Rock formed from soil / plant / animal remains that are hardened by pressure, time, and deposits of natural cements.

Selective Mining: The object of selective mining is to obtain a relatively high-grade mine product; this usually entails the use of a much more expensive stopping system and high exploration and development costs in searching for and developing the separate bunches, stringers, lenses, and bands of ore. 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 vapour 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.
Sequential Firing: A system in which the holes with least resistance are detonated progressively, reducing the burden on each subsequent hole fired.

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 Mining: A type of underground mining that uses a mine shaft. It may also refer to the act of excavating the shaft itself.

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

Shearer: A mining machine for longwall faces that uses a rotating action to "shear" the material from the face as it progresses along the face.

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

Shortwall: An underground mining method in which small areas are worked (15 to 150 feet) by a continuous miner in conjunction with the use of hydraulic roof supports.

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.

Silver: A white precious metal Ag commonly found associated with lead ores and with gold ores.
Sinking: The process by which a shaft is driven.

Skid: A track-mounted vehicle used to hold trips or cars from running out of control. Also it is a flat-bottom personnel or equipment carrier used in low coal.

Skip: A car being hoisted from a slope or shaft.

Slack: Small coal; the finest-sized soft coal, usually less than one inch in diameter.

Slag: The waste product of the process of smelting.

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.

Slate Bar: The proper long-handled tool used to pry down loose and hazardous material from roof, face, and ribs.

Slip: A fault. A smooth joint or crack where the strata have moved on each other.

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.

Slope Stability: The resistance of any inclined surface, e.g. the wall of an open pit or cut, to fracture by sliding or collapsing.

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

Solid: Mineral that has not been undermined, sheared out, or otherwise prepared for blasting.

Sounding: Knocking on a roof to see whether it is sound and safe to work under.

Spacing: The distance between adjacent shot holes parallel to the free face.

Span: The horizontal distance between the side supports or solid abutments along sides of a roadway.
Specific Gravity: The weight of a substance compared with the weight of an equal volume of pure water at 4 degrees Celsius.

Split: Any division or branch of the ventilating current. Also, the workings ventilated by one branch. Also, to divide a pillar by driving one or more roads through it.

Spoil / Waste: The overburden or non-ore material removed in gaining access to the ore mineral material in surface mining.

Squeeze: The settling, without breaking, of the roof and the gradual upheaval of the floor of a mine due to the weight of the overlying strata.

Stability: The condition of a structure or a mass of material when it is able to support the applied stress for a long time without suffering any significant deformation or movement that is not reversed by the release of stress.

Steeply Inclined: Said of deposits and coal seams with a dip of from 0.7 to 1 rad (40 degrees to 60 degrees).

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

Stockpile: Broken ore heaped on surface, pending treatment or shipment.

Stope: An underground excavation from which ore has been removed.

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.
Stripping: The removal of earth or non-ore rock materials, as required, to gain access to the ore or mineral materials worked; the process of removing overburden or waste material in a surface mining operation.

Stripping Ratio: The unit amount of overburden that must be removed to gain access to a similar unit amount of coal or mineral material.

Strip Mining: An open pit mine, usually a coal mine, operated by removing overburden, excavating the coal seam, then returning the overburden.

Stump: Any small pillar.

Subsidence: The gradual sinking, or sometimes abrupt collapse, of the rock and soil layers into an underground mine. Structures and surface features above the subsidence area can be affected.

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

Sumping: To force the cutter bar of a machine into or under the coal. Also called a sumping cut, or sumping in.

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.

Sub-bituminous: Coal of a rank intermediate between lignite and bituminous.

Sub-level: A level or working horizon in a mine between main working levels.
Sub-level Caving: Sublevel caving is usually carried out when mining of the ore body through an open pit method is no longer economically feasible. Mining now proceeds underground, underneath the open pit. At first, both a raise and a network of tunnels are made. At different sub-levels, Jumbos are used for long drill hole drilling, drilling directly upwards into the roof. These holes are then charged with explosives and blasted. As the roof cave in, the rock from the ground surface will cave into the underground as well. (LHD) vehicles transport the muck to an ore pass where the rocks are lifted to the surface. Drilling and blasting takes place at different underground levels of the mine at the same time. As the blasted muck is continuously transported to the ore pass, more blasting will encourage the roof to cave into the void and further into the drift. This is repeated until blasting, caving and transporting depletes the entire ore body.

Sub-level Stoping: A mining method in which ore is blasted from different levels of elevation but is removed from one level at the bottom of the mine. Before mining begins, an ore pass is usually drilled from a lower to a higher elevation. Jumbo drills selectively drill holes into the roof of the drift and fill them with explosives. When the roof is blasted, loose rocks, or muck fall through the drilled ore pass. A Load Haul Dump (LHD) vehicle transports the muck to another ore pass where it falls to a hopper that feeds a crusher. The crushed ore is then raised to the surface I a skip. As the muck is taken out, more drilling of the now higher roof continues. The roof is blasted until it is so high that it can not be reached by a Jumbo. Then a Jumbo working in a higher elevation drift is used to intersect the stope. After blasting, the ore falls down to the lower drift where LHD’s can drive in and load the muck and dump it at an ore pass. Drilling and blasting continues until the stope is completely excavated. Once the stope is completely hollowed out, it is backfilled from the bottom up. The backfill material used can be mixed of sand and rocks, waste rock with cement, or dewatered mill tailings. The backfill material must have the strength to support the roof of the empty stope.
Sub-Surface Mining: Or underground mining refers to a group of techniques used for extraction of coal and other valuable minerals or other geological materials from the earth. In contrast to the other main type of excavation, surface mining, sub-surface requires equipment and/or manpower to operate under the surface of the earth.

Surface Mine: A mine in which the coal lies near the surface and can be extracted by removing the covering layers of rock and soil.

Suspension: Weaker strata hanging from stronger, overlying strata by means of roof bolts.

Syncline: A fold in rock in which the strata dip inward from both sides toward the axis. The opposite of anticline.
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A REFERENCE GUIDE TO THE MINING LANGUAGE

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Mining safely. Mining more. Mining right.
Taconite: A highly abrasive iron ore.

Tailgate: A subsidiary gate road to a conveyor face as opposed to a main gate. The tailgate commonly acts as the return airway and supplies road to the face.

Tailpiece: Also known as foot section pulley. The pulley or roller in the tail or foot section of a belt conveyor around which the belt runs.

Tail Section: A term used in both belt and chain conveyor work to designate that portion of the conveyor at the extreme opposite end from the delivery point. In either type of conveyor it consists of a frame and either a sprocket or a drum on which the chain or belt travels, plus such other devices as may be required for adjusting belt or chain tension.

Tailing: Materials rejected from a mill after the recoverable valuable minerals have been extracted.
Tailing Pond: A low-lying depression used to confine tailings, the prime function of which is to allow enough time for heavy metals to settle out or for cyanide to be destroyed before water is discharged into the local watershed.

Talc: A very soft light-grained mineral of the micas mineral group, usually occurring in metamorphic rocks.

Thermal Coal: Coal burned to generate the steam that drives turbines to generate electricity.

Through-Steel: A system of dust collection from rock or roof drilling. The drill steel is hollow, and a vacuum is applied at the base, pulling the dust through the steel and into a receptacle on the machine.

Timber: A collective term for underground wooden supports.

Timbering: The setting of timber supports in mine workings or shafts for protection against falls from roof, face, or rib.

Timber Set: A timber frame to support the roof, sides, and sometimes the floor of mine roadways or shafts.

Tipple: Originally the place where the mine cars were tipped and emptied of their coal, and still used in that same sense, although now more generally applied to the surface structures of a mine, including the preparation plant and loading tracks.
Toe: A remnant of rock left unbroken at the foot of the pit face by an unsatisfactory blast.

Ton: A short or net ton is equal to 2,000 pounds; a long or British ton is 2,240 pounds; a metric ton is approximately 2,205 pounds.

Top: A mine roof; same as "back."

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

Tram: Used in connection with moving self-propelled mining equipment. A traming motor may refer to an electric locomotive used for hauling loaded trips or it may refer to the motor in a cutting machine that supplies the power for moving or tramming the machine.

Transfer: A vertical or inclined connection between two or more levels and used as an ore pass.

Transfer Point: Location in the materials handling system, either haulage or hoisting, where bulk material is transferred between conveyances.

Trip: A train of mine cars.

Troughing Idlers: The idlers, located on the upper framework of a belt conveyor, which support the loaded belt. They are so mounted that the loaded belt forms a trough in the direction of travel, which reduces spillage and increases the carrying capacity of a belt for a given width.

Troy Oz: Ounce in Troy system of weight used for selling gold, is equivalent to 31.103477 grams.

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.
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Undercut: To cut below or undermine the coal face by chipping away the coal by pick or mining machine. In some localities the terms "undermine" or "underhole" are used.

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.

Underground Station: An enlargement of an entry, drift, or level at a shaft at which cages stop to receive and discharge cars, personnel, and material. An underground station is any location where stationary electrical equipment is installed. This includes pump rooms, compressor rooms, hoist rooms, battery-charging rooms, etc.

Unit Train: A long train of between 60 and 150 or more hopper cars, carrying only coal between a single mine and destination.
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.

Uraninite: A uranium mineral with high uranium oxide content. Frequently found in pegmatite dykes.

Uranium: A radioactive, silvery-white, metallic element.
Valuation: The act or process of valuing or of estimating the value or worth; appraisal.

Vein: A mineralized zone having a more or less regular development in length, width and depth which clearly separates it from neighboring rock.

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.

Violation: The breaking of any state or federal mining law.

Virgin: Un-worked; untouched; often said of areas where there has been no coal mining.

Void: A general term for pore space or other re-openings in rock. In addition to pore space, the term includes vesicles, solution cavities, or any openings either primary or secondary.

Volatile Matter: The gaseous part, mostly hydrocarbons, of coal.

Volcanic: Rocks formed from the solidification of lava extruded on or erupted at the earth’s surface. Also includes pyroclastic rocks.
Waste: That rock or mineral which must be removed from a mine to keep the mining scheme practical, but which has no value.

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.

Weight: Fracturing and lowering of the roof strata at the face as a result of mining operations, as in “taking weight”.

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.

Winning: The excavation, loading, and removal of coal or ore from the ground; winning follows development.

Winze: Secondary or tertiary vertical or near-vertical opening sunk from a point inside a mine for the purpose of connecting with a lower level or of exploring the ground for a limited depth below a level.

Wire Rope: A steel wire rope used for winding in shafts and underground haulages. Wire ropes are made from medium carbon steels. Various constructions of wire rope are designated by the number of strands in the rope and the number of wires in each strand. The following are some common terms encountered: airplane strand; cable-laid rope; cane rope; elevator rope; extra-flexible hoisting rope; flat rope; flattened-strand rope; guy rope; guy strand; hand rope; haulage rope; hawser; hoisting rope; lang lay rope; lay; left lay rope; left twist; no spinning rope; regular lay; reverse-laid rope; rheostat rope; right lay; right twist; running rope; special flexible hoisting rope; standing rope; towing hawser; transmission rope.
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Working: When a coal seam is being squeezed by pressure from roof and floor, it emits creaking noises and is said to be "working". This often serves as a warning to the miners that additional support is needed.

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.
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Xenolith: A fragment of country rock enclosed in an intrusive rock.
Yield: The proportion of ore or coal obtained in mining, the product of a metallurgical process; extraction; recovery.
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Zone: An area or region which is distinct from the surrounding rock, either because of a difference in the type of structures or because of mineralization.

Zone of Oxidation: The portion of an ore body that has been oxidized, usually in the upper portion of the ore zone.