

MINING TERMINOLOGY



Acid mine drainage - Acidic run-off water from mine waste dumps and mill tailings ponds containing sulphide minerals. Also refers to ground water pumped to surface from mines.

Adit - An opening driven horizontally into the side of a mountain or hill for providing access to a mineral deposit.

Assay - A chemical test performed on a sample of ores or minerals to determine the amount of valuable metals contained.

Assessment work - The amount of work, specified by mining law, that must be performed each year to retain legal control of mining claims.

Back - The ceiling or roof of an underground opening.

Backfill - Waste material used to fill the void created by mining an orebody.

Base metal - Any non-precious metal (e.g. copper, lead, zinc, nickel, etc.).

Bench - floor or ground anywhere underground

BLM – Bureau of Land Management

Bullion - Metal formed into bars or ingots.

Chip sample - A method of sampling a rock exposure whereby a regular series of small chips of rock is broken off along a line across the face.

Chromite - The chief ore mineral of chromium.

Chute - An opening, usually constructed of timber and equipped with a gate, through which ore is drawn from a stope into mine cars.

Cinnabar - A vermilion-colored ore mineral of mercury.

Cleavage - The tendency of a mineral to split along crystallographic planes.

Conglomerate - A sedimentary rock consisting of rounded, water-worn pebbles or boulders cemented into a solid mass.

Core - The long cylindrical piece of rock, about an inch in diameter, brought to surface by diamond drilling.

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.

Cyanidation - 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 in heaps of ore out of doors.

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

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

Decline - A sloping underground opening for machine access from level to level or from surface; also called a ramp.

Disseminated ore - Ore carrying small particles of valuable minerals spread uniformly through the host rock.

Drift - A horizontal underground opening that follows along the length of a vein or rock formation as opposed to a crosscut which crosses the rock formation.

Due diligence - The degree of care and caution required before making a decision; loosely, a financial and technical investigation to determine whether an investment is sound.

Dump - A pile of broken rock or ore on surface.

Dyke - A long and relatively thin body of igneous rock that, while in the molten state, intruded a fissure in older rocks.

EPA – Environmental Protection Agency

Epithermal deposit - A mineral deposit consisting of veins and replacement bodies, usually in volcanic or sedimentary rocks, containing precious metals or, more rarely, base metals.

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

Exploration - Prospecting, sampling, mapping, diamond drilling and other work involved in searching for ore.

Face - The end of a drift, crosscut or stope in which work is taking place.

Fault - A break in the Earth's crust caused by tectonic forces which have moved the rock on one side with respect to the other.

Feldspar - A group of common rock-forming minerals that includes microcline, orthoclase, plagioclase and others.

Fine gold - Fineness is the proportion of pure gold or silver in jewelry or bullion expressed in parts per thousand. Thus, 925 fine gold indicates 925 parts out of 1,000, or 92.5% is pure gold.

Fissure - An extensive crack, break or fracture in rocks.

Float - Pieces of rock that have been broken off and moved from their original location by natural forces such as frost or glacial action.

Flotation - A milling process in which valuable mineral particles are induced to become attached to bubbles and float as others sink.

Footwall - The rock on the underside of a vein or ore structure.

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Fracture - A break in the rock, the opening of which allows mineral-bearing solutions to enter. A "cross-fracture" is a minor break extending at more-or-less right angles to the direction of the principal fractures.

Free milling - Ores of gold or silver from which the precious metals can be recovered by concentrating methods without resorting to pressure leaching or other chemical treatment.

FS – United States Forest Service

Galena - Lead sulphide, the most common ore mineral of lead.

Gangue - The worthless minerals in an ore deposit.

Geology - The science concerned with the study of the rocks which compose the Earth.

Glory hole - An open pit from which ore is extracted, especially where broken ore is passed to underground workings before being hoisted.

Gneiss - A layered or banded crystalline metamorphic rock, the grains of which are aligned or elongated into a roughly parallel arrangement.

Gossan - The rust-colored capping or staining of a mineral deposit, generally formed by the oxidation or alteration of iron sulphides.

Gouge - Fine, putty-like material composed of ground-up rock found along a fault.

Grab sample - A sample from a rock outcrop that is assayed to determine if valuable elements are contained in the rock. A grab sample is not intended to be representative of the deposit, and usually the best-looking material is selected.

Grizzly (or mantle) - A grating, usually constructed of steel rails, placed over the top of a chute or ore pass for stopping large pieces of rock or ore that may hang up in the pass.

Grubstake - Finances or supplies of food, etc., furnished to a prospector in return for an interest in any discoveries made.

Hanging wall - The rock on the upper side of a vein or ore deposit.

Head grade - The average grade of ore fed into a mill.

Heap leaching - A process whereby valuable metals, usually gold and silver, are leached from a heap, or pad, of crushed ore by leaching solutions percolating down through the heap and collected from a sloping, impermeable liner below the pad.

Hematite - An oxide of iron, and one of that metal's most common ore minerals.

High grade - Rich ore. As a verb, it refers to selective mining of the best ore in a deposit.

Hoist - The machine used for raising and lowering the cage or other conveyance in a shaft.

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Hornfels - A fine-grained contact metamorphic rock.

Horse - A mass of waste rock lying within a vein or orebody.

Horst - An upfaulted block of rock.

Host rock - The rock surrounding an ore deposit.

Hydrometallurgy - The treatment of ore by wet processes, such as leaching, resulting in the solution of a metal and its subsequent recovery.

Hydrothermal - Relating to hot fluids circulating in the earth's crust.

Jaw crusher - A machine in which rock is broken by the action of steel plates.

Jig - A piece of milling equipment used to concentrate ore on a screen submerged in water, either by the reciprocating motion of the screen or by the pulsation of water through it.

Lagging - Planks or small timbers placed between steel ribs along the roof of a stope or drift to prevent rocks from falling, rather than to support the main weight of the overlying rocks.

Leaching - A chemical process for the extraction of valuable minerals from ore; also, a natural process by which ground waters dissolve minerals, thus leaving the rock with a smaller proportion of some of the minerals than it contained originally.

Lens - Generally used to describe a body of ore that is thick in the middle and tapers towards the ends.

Level - The horizontal openings on a working horizon in a mine; it is customary to work mines from a shaft, establishing levels at regular intervals, generally about 50 metres or more apart.

Limestone - A bedded, sedimentary deposit consisting chiefly of calcium carbonate.

Lode - A mineral deposit in solid rock.

Long ton - 2,240 lbs. avoirdupois (compared with a short ton, which is 2,000 lbs.).

Metallurgy - The study of extracting metals from their ores.

Mill - A plant in which ore is treated and metals are recovered or prepared for smelting; also, a revolving drum used for the grinding of ores in preparation for treatment.

Milling ore - Ore that contains sufficient valuable mineral to be treated by milling process.

Mineable reserves - Ore reserves that are known to be extractable using a given mining plan.

Mineral - A naturally occurring homogeneous substance having definite physical properties and chemical composition and, if formed under favorable conditions, a definite crystal form.

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

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Native metal - A metal occurring in nature in pure form, uncombined with other elements.

Net smelter return - A share of the net revenues generated from the sale of metal produced by a mine.

Nugget - A small mass of precious metal, found free in nature.

Open pit - A mine that is entirely on surface. Also referred to as open-cut or open-cast mine.

OPT: Ounces Per Ton

Ore - A mixture of ore minerals and gangue from which at least one of the metals can be extracted at a profit.

Ore pass - Vertical or inclined passage for the downward transfer of ore connecting a level with the hoisting shaft or a lower level.

Orebody - A natural concentration of valuable material that can be extracted and sold at a profit.

Ore Reserves - The calculated tonnage and grade of mineralization which can be extracted profitably; classified as possible, probable and proven according to the level of confidence that can be placed in the data.

Ore shoot - The portion, or length, of a vein or other structure that carries sufficient valuable minerals to be extracted profitably.

Outcrop - An exposure of rock or mineral deposit that can be seen on surface, that is, not covered by soil or water.

Oxidation - A chemical reaction caused by exposure to oxygen that results in a change in the chemical composition of a mineral.

Pan - To wash gravel, sand or crushed rock samples to isolate gold or other valuable metals by their higher density.

Patent - The ultimate stage of holding a mineral claim, after which no more assessment work is necessary because all mineral rights have been earned.

Pegmatite - A coarse-grained, igneous rock, generally coarse, but irregular in texture, and like a granite in composition; usually occurs in dykes or veins and sometimes contains valuable minerals.

Peridotite - An intrusive igneous rock consisting mainly of olivine.

Pillar - A block of solid ore or other rock left in place to structurally support the shaft, walls or roof of a mine.

Pitchblende - An important uranium ore mineral. It is black in color, possesses a characteristic greasy luster and is highly radioactive.

Placer - A deposit of sand and gravel containing valuable metals such as gold, tin or diamonds.

Porphyry - Any igneous rock in which relatively large crystals, called phenocrysts, are set in a fine-grained groundmass.

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Porphyry copper - A deposit of disseminated copper minerals in or around a large body of intrusive rock.

Portal - The surface entrance to a tunnel or adit.

Possible reserves - Valuable mineralization not sampled enough to accurately estimate its tonnage and grade, or even verify its existence. Also called "inferred reserves."

Primary deposits - Valuable minerals deposited during the original period or periods of mineralization, as opposed to those deposited because of alteration or weathering.

Probable reserves - Valuable mineralization not sampled enough to accurately estimate the terms of tonnage and grade. Also called "indicated reserves."

Prospect - A mining property, the value of which has not been determined by exploration.

Proven reserves - Reserves that have been sampled extensively by closely spaced diamond drill holes and developed by underground workings in sufficient detail to render an accurate estimation of grade and tonnage. Also called "measured reserves."

Pyrite - A yellow iron sulphide mineral, normally of little value. It is sometimes referred to as "fool's gold".

Raise - A vertical or inclined underground working that has been excavated from the bottom upward.

Rare earth elements - Relatively scarce minerals such as niobium and yttrium.

Reclamation - The restoration of a site after mining or exploration activity is completed.

Reconnaissance - A preliminary survey of ground.

Recovery - The percentage of valuable metal in the ore that is recovered by metallurgical treatment.

Refractory ore - Ore that resists the action of chemical reagents in the normal treatment processes and which may require pressure leaching or other means to affect the full recovery of the valuable minerals.

Replacement ore - Ore formed by a process during which certain minerals have passed into solution and have been carried away, while valuable minerals from the solution have been deposited in the place of those removed.

Rhyolite - A fine-grained, extrusive igneous rock which has the same chemical composition as granite.

Rib samples - Ore taken from rib pillars in a mine to determine metal content.

Rock - Any natural combination of minerals; part of the earth's crust.

Rock bolting - The act of supporting openings in rock with steel bolts anchored in holes drilled especially for this purpose.

Room-and-pillar mining - A method of mining flat-lying ore deposits in which the mined-out areas, or rooms, are separated by pillars of approximately the same size.

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Run-of-mine - A term used loosely to describe ore of average grade.

Salting - The act of introducing metals or minerals into a deposit or samples, resulting in false assays. Done either by accident or with the intent of defrauding the public.

Sample - A small portion of rock or a mineral deposit taken so that the metal content can be determined by assaying.

Sampling - Selecting a fractional but representative part of a mineral deposit for analysis.

Schist - A foliated metamorphic rock the grains of which have a roughly parallel arrangement; generally developed by shearing.

Shaft - A vertical or inclined excavation in rock for providing access to an orebody. Usually equipped with a hoist at the top, which lowers and raises a conveyance for handling workers and materials.

Sheave wheel - A large, grooved wheel in the top of a headframe over which the hoisting rope passes.

Shoot - A concentration of mineral values; that part of a vein or zone carrying values of ore grade.

Short ton - 2,000 lbs. avoirdupois.

Skarn - Name for the metamorphic rocks surrounding an igneous intrusive where it meets a limestone or dolostone formation.

Skip - A self-dumping bucket used in a shaft for hoisting ore or rock.

Slag - The vitreous mass separated from the fused metals in the smelting process.

Sludge - Rock cuttings from a diamond drill hole, sometimes used for assaying.

Sphalerite - A zinc sulphide mineral; the most common ore mineral of zinc.

Spot price - Current delivery price of a commodity traded in the spot market.

Station - An enlargement of a shaft made for the storage and handling of equipment and for driving drifts at that elevation.

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

Stope - An excavation in a mine from which ore is, or has been, extracted.

Strike - The direction, or bearing from true north, of a vein or rock formation measure on a horizontal surface.

Stringer - A narrow vein or irregular filament of a mineral or minerals traversing a rock mass.

Sulphide - A compound of Sulphur and some other element. Tailing – Refers to waste rock which has been processed in some manner.

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Tailings - Material rejected from a mill after most of the recoverable valuable minerals have been extracted.

Tailings 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.

Telluride - A chemical compound consisting of the element tellurium and another element, often gold or silver.

Tram - To haul cars of ore or waste in a mine.

Trench - A long, narrow excavation dug through overburden, or blasted out of rock, to expose a vein or ore structure.

Trend - The direction, in the horizontal plane, of a linear geological feature, such as an ore zone, measured from true north.

Tunnel - A horizontal underground opening, open to the atmosphere at both ends.

Vein - A fissure, fault or crack in a rock filled by minerals that have travelled upwards from some deep source.

Visible gold - Native gold, which is discernible, in a hand specimen, to the unaided eye.

Vug - A small cavity in a rock, frequently lined with well-formed crystals. Amethyst commonly forms in these cavities.

Waste - Unmineralized, or sometimes mineralized rock that was discarded as less valuable than the mining ore at the time of development.

Wedge - A technique of directing a diamond drill hole in a desired direction away from its current orientation.

Winze - An internal shaft.