



Mining Dictionary & Glossary

Mining Dictionary

[Dictionary of Mining and Mineral Terms](#)

Mining Glossary

ADIT

An entrance to a mine, generally a horizontal tunnel.

AG

Symbol for silver.

AMALGAMATION

The technique of using mercury to attract small particles of crushed gold and join with them in an amalgam, or alloy. Gold may be recovered by distilling off the mercury.

ANOMALY/ANAMALOUS

A value higher or lower than the expected which may outline a zone of potential exploration interest but not necessarily of economic significance.

ARRASTRA

A mill, consisting of one or more large stones dragged around on a circular bed, used to grind ore.

ASSAYING

The most promising hand samples and core are invariably submitted to an accredited laboratory for analysts. This process, in which the precise chemical composition of the rock and its mineralization cataloged, is called assaying.

AU

Symbol for gold.

AURIFEROUS

Gold-bearing.

CHALCOPYRITE

A mineral whose composition is iron-copper-sulphide.

CHILEAN MILL

A machine, somewhat like the arrastra, in which heavy stone wheels turn about a central shaft and crush

ore.

CORNISH PUMP

A type of pump developed in Cornwall, England, and commonly used in deep mines of the nineteenth century to raise underground water.

CROSSCUT

A horizontal tunnel driven perpendicular to the main direction of a vein.

CU

Symbol for Copper

DEPOSIT

Used in reference to an economic accumulation of minerals.

DIAMOND DRILLING

Just as one should not judge a book by its cover, surface sampling gives no definitive indication of how tremendous, or how mediocre, a deposit lies underfoot. Thus, after surface sampling indicates a possible concentration of valuable mineral, diamond drilling is undertaken. The only way to ascertain the quantity (tonnage) and quality (grade) of a deposit is to make a circular cut in the rock and extract the continuous cylindrical core sample from the center of the cut. To do this, a special type of drill has been developed, with a rotating core barrel that grinds down through the bedrock. At the end of the core barrel is a cylindrical bit studded with the hardest of natural substances - diamonds. The size of the diamond drill core varies with the size of the machine used which generally depends on hole depths and material being drilled. However, the common sizes of core are;

- A - core diameter of 27.0 mm, hole diameter 48.0 mm;
- B - core diameter of 36.5 mm, hole diameter 60.0 mm;
- N - core diameter of 47.6 mm, hole diameter 75.5 mm;
- H - core diameter of 63.5 mm, hole diameter 96.0 mm.

DRIFT

An underground tunnel which follows the course of a vein.

DYKE

A tabular body of igneous rock that cuts across the structure of adjacent rocks or massive rocks.

FAULT

A fracture or fracture zone along which there has been displacement of the two sides relative to one another.

FELSIC VOLCANIC ROCK

An igneous plutonic or volcanic rock consisting of the minerals feldspar and quartz.

FOOTWALL

The wall or rock on the underside of a stope.

GALLERY

A drift which has been enlarged into an underground room by the extraction of ore.

GANGUE

The worthless rock in a vein which holds valuable metals.

GEOCHEMICAL SAMPLING

The sampling of rocks, stream sediments and soils in order to locate abnormal concentrations of metallic elements or minerals. The samples are usually assayed by various methods to determine the quantities of elements or minerals in each sample.

GEOPHYSICAL SURVEY

The exploration of an area in which physical properties relating to geology are used. Geophysical methods include seismic, magnetic, electromagnetic, gravity and induced polarization techniques.

GEOPHYSICS

The rapid expansion of technological knowledge following the 2nd World War has permitted great advances in geophysics, the study of the physical properties of the earth, it's not a new science, as early as the 17th century, Swedish prospectors were using magnetized bars to locate magnetic bodies of iron ore - but it developed rapidly during the post war boom and computerization has meant the amount of data we can acquire and process on the site has increased dramatically. In all geophysical surveys, what is sought is an anomaly - an exception to the norm. A geophysical anomaly is an area where the earth has unusual physical properties.

In a typical geophysical survey, a physical property like the gravitational or magnetic field is measured on a grid of locations over the survey area. The value found at each grid position is plotted on a plan view of the property. Lines are then drawn through points having equal value, in exactly the same manner that the iso bars are drawn on a weather map or elevation contour on a relief map. This map of the geophysical data allows the prospector to pick out areas with the geophysical characteristics that suggest there may be mineralization.

GEOLOGY

The science or study of rocks in the earth.

GM(S)

A symbol for gram(s), a measurement of weight.

G/T

Grams per tonne.

GRAB SAMPLE

One or more pieces of rock collected at random locations of a mineralized zone that, when analyzed, do not represent a particular width nor necessarily the true mineral concentration.

GREENSTONE BELT

Generally, a regional linear area underlain predominately by volcanic, volcanoclastic and related plutonic rocks.

HANGING WALL

The wall or rock on the upper or topside of an ore deposit.

HEAD FRAME

A Head frame is a structure housing the shaft and hoist needed for underground mining.

HEAP LEACH

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

KIBBLE

Iron Cornish bucket used to hoist ore and miners to the surface.

LEACH PAD

A large, impermeable foundation or pad used as a base for ore during heap leaching.

LEVEL

Horizontal passageways or tunnels in the mine leading from shafts, established at regular intervals.

LODE

An ore deposit occurring in place within definite boundaries separating it from the adjoining rocks.

MAFIC ROCK

An igneous plutonic or volcanic rock essentially composed of minerals containing calcium, iron and magnesium and little free quartz.

METAMORPHISM

A pronounced change in the constitution of rock effected by pressure, heat, and water that results in a more compact and more highly crystalline condition.

MINERAL

A substance which may, or may not, be of economic value, that occurs naturally in the earth. It is homogenous, has certain chemical makeup and usually appears in crystal or grain form.

MINERALIZATION

A natural aggregate of one or more minerals.

MO

Symbol for Moly

OPEN-PIT MINING

Open-pit mine is the least expensive type of mining. The mining method of choice for situated close to surface and with little overburden (low stripping ratio) large tonnage deposits.

ORE

A natural aggregate of one or more minerals which, at a specified time and place, may be mined and sold at a profit, or from which some part may be profitably separated; A mixture of minerals and gangue from which at least one of the minerals can be extracted at a profit. Ore is natural occurring material containing valuable minerals that can be economically extracted.

OVERBURDEN

Any unconsolidated material that covers the solid rock of the earth.

Oz.

One troy ounce or 31.103 gms.

PAN

A shallow metal dish used for washing earth and stones to separate the gold.

PERMIT SYSTEM

The other wide spread system of land tenure is the Permit System. In this scheme, the government controls the mineral rights and licence's the prospector to explore a certain area. This permit - also called the concession, licence, or contract area expires after a specified period; usually the prospector can renew the permit but must drop part of the area it covers. This provision ensures that the holder works continuously on exploration in order to know which part of his contract area to keep at the next renewal. The exploration permit may also specify minimum amounts of work that must be done, or money that must be spent, on the area to keep the mineral rights.

The claim system, because it allows prospectors to stake open ground without requiring applications or prior agreements, rewards companies and individuals that move quickly to pick up mining rights. The permit system requirement for a formal exploration agreement rewards large groups with the backing to carry out the plans.

Both the claim system and the permit system give the holder the exclusive right to explore and develop an area. To keep that right, the holder is required to perform work; if the work is not done, the ground falls open for someone else.

It is also usual that the holders of mining property must submit technical reports to the government as proof that the exploration work has been done. The reports are opened to the public and become useful information for the future prospectors.

PLACER

An alluvial or glacial deposit containing particles of gold or other valuable minerals.

PLUTONIC ROCK

An igneous rock that has formed beneath the surface of the earth by consolidation from magma.

PPM

Parts per million.

PROVEN RESERVES

Proven reserves are reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, workings or drill holes: grade or and /or quality are computed from the results of detailed sampling and (b) the sites for inspection, sampling and measurements are spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well-established.

PYRITE

A mineral whose composition is iron and sulphur.

QUARTZ

A mineral whose composition is silicon dioxide, a crystalline form of silica.

RETORT

A vessel in which substances are distilled or decomposed by heat.

ROCKER

A device for washing gold-bearing earth to recover the precious metal.

SEDIMENT

Material formed by deposition or precipitation of solids.

SHAFT

A vertical entrance to a mine cut downward from the surface.

SQUARE SET

A set of timbers used for support in underground mining.

STAMP MILL

A machine for crushing ore by the weight of constantly falling pieces of iron, stone, or wood. The action approximates the pulverizing of material with a mortar and pestle.

STOPE

An excavation created by the removal of ore and consequent widening of the drift.

SULPHIDE

A mineral compound of sulphur with one or more metallic elements.

TAILINGS

Finely ground particles of ore deposited as waste after processing by a mill or smelter.

TONNE

2205 lbs. or 1.0 metric ton;

TRENCH

Elongated excavation across a prospective zone for sampling and mapping purposes.

TRENCHING

Trenching refers to prospecting in which subsurface strata are exposed by digging pits across the long dimensions or strike of a lode.

VEIN

A zone or belt of mineralized rock lying within boundaries clearly separating it from neighbouring rock. An opening, fissure, or crack in rock, containing mineralized material.

VLF-EM

A very low frequency electromagnetic geophysical instrument used in exploration to measure variances of conductivity in surficial (i.e. surface) sediments and bedrock.

VOLCANIC ROCK

An igneous rock that has been poured out or ejected at or near the earth's surface.

VOLCANOCLASTIC

A sedimentary rock derived from the erosion of volcanic rocks.

WASTE

Rock containing no ore but removed in the course of mining operations.

WHIM

A winding machine used for hoisting ore out of a shaft.

WINDLASS

A device, smaller than a whim, used to raise ore from a shaft.

WINZE

A vertical or inclined opening sunk from a point inside a mine.

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