

Glossary of Mining Terms

Acid drainage control = stop acid from the mine leaking into the ground.

Acid mine drainage = poisonous/cheeky chemicals left over from processing the ore (taking the minerals out of the ore).

Aquatic fauna = fish and water animals

Agreement = say yes to exploration and mining

Airborne geophysics = a way of measuring the geophysics of an area from the air using a special airplane.

ALRA(NT)Act = Aboriginal Land Rights (NT) Act.

Applicant = a company that is applying for an exploration licence.

Apply = ask to do exploration

Archaeological sites = things left over from the past (a very long time ago) and old days which are buried under the ground.

Authority Certificate = is a certificate from the Aboriginal Areas Protection Authority (AAPA) which tells the exploration or mining company where they can or can't go, to make sure they stay away from sacred sites. If the company doesn't obey the conditions of the Certificate it will be prosecuted (charged).

Authorisation under Section 178 = permission as set by the Minister to explore or mine on land that is a reserve (that normally cannot be used for anything).

Avian fauna = birds.

Backfilled = filled up with soil.

Bad waste = nasty (rubbish) rock which has sulphides in it.

Benches = are the different levels in an open cut mine.

Biological Studies = learning about all the plants and animals in a specific area.

Blasting = explosive charges which are made from a mixture of chemicals are used to break up the rock by pressure when they explode (go bang).

Buffer zone = is an area of land between the pit and the rest of the mine area.

Bulk sampling = taking a lot of samples from one spot or location, usually sand from a riverbed.

Capping = covering the rock with material like clay to keep the water and air out.

Capping material = clay or something similar which is put on the waste dump to block out water and air from reaching the contaminated rock.

Chemical composition = what chemicals the mineral is made up of.

Christmas Tree = special pipes and valves placed over an oil or gas well to control (look after) the pressure and to stop the possibility of fire. The Christmas Tree lets the oil and gas flow into storage tanks.

Classification = separating ground ore or undersize into different sizes, or types of minerals, or how the ore can be processed.

Clean runoff = uncontaminated rainwater that runs off the mine area.

Commission the plant = to check the plant to make sure that it all works well and that there are no leaks or spills of oils, fuel and water for safety and environmental reasons.

Commitment = promise

Concentrate = is the substance (stuff) that is left when water is taken out of the solution (chemical mixture).

Concrete aggregate = gravel of a set size which is used for concrete.

Conditions = rules

Consent = permission

Construction = building

Contaminated = poisoned

Consult = talk to

Costeaning = digging narrow trenches less than one metre wide and about one metre (to your waist) to four metres (about the height of a house) deep with a back hoe.

Crude oil = oil that comes straight out of the ground.

Crushed ore = ore that is broken into manageable small pieces, eg. gravel.

Crushing plant = is the equipment that crushes the ore or rock.

Crust material = the top of the rock.

Dangerous materials = things that can be unsafe or poisonous eg. chemicals.

Data = written notes, figures, computer information, test results and field work reports.

Decline = is a sloping tunnel big enough for vehicles, loaders and trucks to drive up and down to get to the ore and take the ore out.

Decommissioning = close down a mine and tidy up after mining has finished. This involves taking away buildings and equipment and rehabilitating the mine site area.

Decommission (demobilisation) plan = closing down and tidying up/how the company will take away the crushing plant and equipment at the end when all the rock has been quarried.

Decommissioning and Rehabilitation Plan = how the company will close down, tidy up and rehabilitate the mine site when all mining and processing work has finished.

Deep diamond drilling = drilling to about 120 metres or more (which is the same as the distance between the goal posts of a football oval).

Density = how full and thick

Dimension stone = like slate, granite, marble, and rock blocks which are cut into different sizes for tiles, gravestones and tabletops.

Directional drilling = drill pipes that go deep underground in different directions.

Director of Mines = boss of the Mines Division which is a section in the Department of Business, Industry and Resource Development that makes sure that the exploration and mining companies obey all the laws and regulations about exploration and mining in the Northern Territory.

Discharge = let the water go

Disposal = dumping

Disturbed areas = areas that have been cleared or dug up, eg. trenches, gravel pits, tracks and dams.

DBIRD – the Northern Territory Department of Business, Industry and Resource Development.

DBIRD Environment Officers = scientists, technicians and inspectors of the Department of Business, Industry and Resource Development who check the rehabilitation work of the companies and to make sure that they are looking after the environment properly.

Downstream impact = what the mine will do to the rivers and creeks near the mine.

Drainage = where the water flows.

Drainage morphology = the look and shape of the waterways of an area including creeks, rivers and streams, and billabongs and the shape of the land around them.

Drill bit = is at the end of long steel pipes, 9 metres long (the size of a palm tree) and has hard metal teeth and sometimes with strong diamonds to cut into the rock.

Drilling equipment = equipment used for drilling holes.

Drilling fluid = muddy liquid made of clay, chemicals and water which is pumped down through the insides of the pipe and flows out through the bit and along the outside of the pipe bringing rock chips to the surface (top) for the geologists to check.

Drill record = a list of each drill hole made by the title holder.

Drill rig = a machine that drills holes deep in the ground.

Dust deposition = where the dust will fall.

Earthworks = digging up and removing (taking away) and stockpiling the soil and rocks using bulldozers and excavators, eg. making a track when digging a hole.

Ecological = the relationship of plants and animals with their environment.

Economic evaluation = The company does its sums to see if the project will cost much to run and if they can make money from the project.

Electrowinning machine = is a shaking tray that has ridges. Gold liquid is poured onto the tray and the gold sticks to the ridges when the tray is shaking.

Employment = jobs

Endangered = rare, very, very few.

End product = what is left after processing that is useful, eg. gold, zinc, gravel, sand.

Environmental impact = causes (make) problems for the environment.

Environmental Impact Statement (EIS) = is also the second stage of the Environmental Assessment (checking) process. If the Notice of Intent (NOI) shows that the mining project will cause many environmental impact (problems) that could cause a lot of worry, the company must write an EIS following set guidelines which explains the mining project, the possible environmental problems and how the company will look after the environment and prevent (stop) environmental problems. The public and government departments may read the Draft (first) EIS and make comments about it. The company must also write a supplement (extra report) that answers these comments. The EIS and the Supplement goes to the NT Department of Lands Planning and Environment for checking. This Department writes a report to the company to tell them it is OK or if any changes have to be made. No mining work can begin until the EIS is OK.

Environmental issues = environmental problems/worries.

Environmental Lease Conditions = with the lease there are rules about the environment which the company must obey.

Environmental Management Plan (EMP) = is the company's plan on how it will look after the environment during all stages of mining; construction, mining, processing, decommissioning and rehabilitation.

Environmental plan = how the company will look after the environment at different stages of mining processing, decommissioning and rehabilitation.

Environmental protection = looking after the environment including; the land, the sea, the air, the water, the plants and animals.

Environmental Securities = company sends money for rehabilitation work to DBIRD. If the company does not do a good rehabilitation job then DBIRD will use this money to pay a contractor to do the work.

Erosion = wash-aways.

Excavate = to dig up

Excavation equipment = equipment used for digging up ore or rock eg. bulldozers and excavators.

Executive Summary = short explanation about the mining project, its size, how much will be mined, how it will help the Australian economy, employment and possible environmental and social problems related to the project.

Existing environment = the environment now, before mining.

Exploration companies = are companies which look for minerals that can be mined or for oil and gas.

Exploration costs = the amount of money that is spent on doing exploration work.

Exploration Licence Application = a request (a special note asking) for an Exploration Licence, to explore (look) for minerals.

Exploration Licence Application – Exploration Program = the exploration work a company plans to do on the land they have an exploration title to.

Exploration Licence (Exploration Title) = permission/permit to explore (look) for minerals that can be mined.

Exploration Permit Application = a request for an Exploration Permit. To explore for oil and/or gas.

Exploration Permit (EP) = a permit to explore for oil and/or gas.

Exploration Reports (Company Reports) = are reports written by exploration companies about the exploration work they have done in an area and the results of their work.

Exploration Retention Licence = when a company has finished its exploration work it applies for this licence to carry out a feasibility study for a mine in the area of their exploration licence. The company does their sums for a mine but they are not allowed to start mining.

Exploration work program = exploration work that an exploration company wishes to do.

Extension = extra time for negotiation.

Extract = separate

Extractive Mineral Lease = a permit which gives a company permission to quarry/mine for extractive minerals, eg. sand, gravel and soil from an area that has been surveyed.

Extractive Mineral Permit = a permit to quarry/mine for any extractive minerals, eg. sand gravel from private land with the land owners permission included in the application.

Facilities = buildings, equipment and special places which are used for a set reason, eg. the mess which is the place where miners get their meals.

Fauna = animals

Feasibility study = before a company starts a project, it does its sums and research to make sure that the project is worth doing and that they have enough money to do the project. The company must know the following things:

- How much good quality ore is there?
- What type of plant will they need to crush the ore?
- Cost of environmental protection and rehabilitation after mining.
- Is the area an easy or difficult place to get to will this affect the cost of transport?
- What is the price of the minerals overseas – is it high or low?
- How much work does the company have in other areas of Australia and the World?
- Cost of Employment – Are there skilled workers (people who can do the work) in the area or do they have to fly them in?
- What is the company's mining policy (plan)?

Feral animals = animals that have gone wild, eg. buffaloes, donkeys, brumbies, goats and wild cats.

Field work = doing research work outside the office, eg. geological fieldwork involves collecting rock, soil and sand samples.

Field reconnaissance = survey in the bush for something specific eg. different types of rocks.

Flagging = coloured plastic ribbon that is used for marking out things like tracks or places.

Flora = plants.

Fossicker's Permit = permission to fossick (look for) gems and minerals using only hand held equipment, eg. shovel, picks and crow bars to a depth of 1 metre (waist deep) at the most.

Froth flotation = is a process when the undersize is mixed with a solution which froths up like Coke. The minerals stick to the froth (bubbles) and the rubbish sinks to the bottom of the solution.

Gas plant = processes the gas that comes out of the ground through the well. At the gas plant the water that comes out of the ground with the gas is separated and the gas is compressed (squeezed) so it can be transported by pipeline.

Geochemical sampling = testing the chemicals in the rocks from an exploration area.

Geochemistry = the chemistry in geological forms such as rocks, soils and sand.

Geological layers = layers of different types of rocks.

Geological maps = maps that show the geology of an area of land including the different rocks, soils and sands that are found there.

Geology = is the study of how the Earth, its rocks, minerals, soils and sand were made.

Geophones = are special equipment that are pegged along the seismic track. They send signals (messages) to the seismograph.

Geophysics = the way to measure the physics (physical composition such as heat, pressure, magnetism, radioactivity, and electricity) of a rock under the ground and what the earth is made of.

Geophysicist = is a person who has knowledge of geophysics and studies the geophysics of the Earth.

Grant = give permission to do something.

Granted = passed/permission given/OK.

Gravity = the force that pulls things to the centre of the Earth. The Earth's gravity causes things to fall when you drop them.

Grid = are lines that are the same distance apart that run north to south and east to west of the area to be explored thoroughly. These grid lines are marked with flagging tape and a number of its location.

Growing medium = surface layer of any material that plants will grow in.

Ground ore = crushed ore that is broken into very small pieces of ore about the size of peas.

Guidelines = checklist, a list of advice that must be followed.

Habitat = home and living area of plants and animals.

Half a metre = knee deep.

Hazardous wastes disposal = dangerous/poisonous rubbish including chemicals like cyanide left over from processing.

Hardstand areas = where the soil has gone hard, eg. roads and tracks.

Heap-leach = dirty water that is left over after processing the ore.

Heavy medium = a mixture of grey powder made from fine iron dust and water which looks like sloppy grey mud that is used to separate diamonds from the kimberlite.

A Heavy Medium Separator = is a machine that separates out the heavy minerals from the unwanted lighter minerals using a heavy medium.

Heritage matters = things left over from the past (a very long time ago) which are still important for the people now, eg. buildings, monuments, and traditions.

High risk business = business that can be difficult because of science, technology, money, guess work and luck.

History story of what happened in the time past, before now.

Historical sites = old places.

Horizontal drilling – drill pipes that go down into the ground and enter the rock trapping the oil side ways.

Income = money from something, eg. business or from work.

Indicate = show

Industry = exploration and mining companies.

Infrastructure = buildings, roads, transport, mining equipment and power.

Insect control = what the company will do about the insects in the area. Eg. stop mosquitoes from breeding and growing in the mine area.

Intensive exploration = exploration work in a small area involving a lot of close-space work.

International Standards Organisation (ISO) = is an organisation that sets the highest standards in the world.

Investigate = check.

Investigation work = checking and reporting about accidents and problems at a mine including waste (rubbish, rubbish rock and dirty water), acid drainage, maintenance, and safety and give advice on how they can be fixed.

Kimberlite = the volcanic rock which contains diamonds.

Land restoration = fixing up the land that has been mined to make sure it is safe for people and wild life.

Landscape = the shape of the land, eg. hills, mountains, flood plains, desert, valleys, lakes.

Landslides = a lot of earth and rock breaking off and sliding down the side of a pit.

Land use = how the land is used, eg. mining, conservation, farming and recreation (sports and fun).

Leaching = when something is washed out of a substance by water passing through it or over it.

Lease= title

Legally = by law

Letter of Approval for Substantial Disturbance = Permission for a company to do activities of substantial disturbance, eg. drilling, grading, costeaning.

Liquid Natural Gas (LNG) = is natural gas that has changed into liquid by cooling to 161°C so it can be transported in special tankers.

Liquid Petroleum Gas (LPG) = is made from natural gas and is stored in strong steel gas bottles. LPG is used for gas stoves and some taxis use it instead of petrol.

Magnetics = something that is magnetic is something that pulls metal things to itself, eg. a magnet pulls a piece of iron or steel to itself.

Maintain water quality = keeps the water good.

Market = businesses and people who want to buy the end products.

Mill = the equipment used to tumble and grind rock into small pieces the size of peas.

Mine Operations = what happens at the mine.

Mine Plan (MP) = what the company plans to do at the mine.

Mineral Claim (MC) = A permit which gives a company permission to prospect and mine for minerals, or explore for extractive minerals (sand, gravel) or run a business for tourists

Mineral Deposits = Areas where there is a lot of rock containing minerals.

Mineral Lease = A permit which gives a company permission to mine for minerals and to build a mine and all the equipment necessary for mining. The area of the lease must be surveyed (measured and mapped).

Mineral Price = is the international (world) price for a specific mineral, eg. gold price.

Mineral Processing (also called ore dressing or mineral dressing) = is a process using machines which separate the good ore minerals from the rubbish ore minerals or the ore minerals that the company does not want to produce (make).

Miner's Right = permission to prospect (look for) minerals and apply for an exploration and mining licences.

Minimum = as little as possible.

Mining Act and Mine Management Act = laws about exploration and mining.

Mining methods = ways of mining.

Mining Policy = the company's plans and ideas about mining that help the company to make decisions (make its mind up).

Mining Project = everything about a mine.

Monitoring = testing and sampling.

Monitoring Data = test results.

Monitoring Program = program for sampling, measuring, testing, checking and reporting during the mine project.

Moratorium = 5 years of moratorium.

National Association of Testing Authorities (NATA) = is an association that sets the highest standards in Australia.

Native Plants = plants that are special to an area.

Natural Drainage = wherever the water flows to when it rains like into gullies, billabongs, streams and creeks.

Natural Gas = gas that comes straight out of the ground.

Negotiate = talk and do business.

Negotiation period = request for extra time to talk and do business.

Noise control = reduce (make less) noise at the mine as much as possible.

Non-Metallic Rock = are rocks which do not have valuable minerals used to make metal.

Notice of Intent (NOI) = is the first stage of environmental assessment (checking) process. It is a short explanation of the mining project that the company wants to do. It includes maps, photographs, plans and an explanation of the environmental problems that may happen. The NOI which follows set guidelines, is used to help decide if the project should go to the Northern Territory Department of Lands Planning and Environment for checking under the *Environmental Assessment Act*. No mining work can begin until the NOI has been checked and is OK.

Occupational Health = work health, the health of the worker while he is at work.

Oil and Gas Fields = area of land where oil and gas is found.

Oil and Gas Production = pump oil and gas out of the ground.

Oil Plant = Processes the oil that comes out of the ground through the oil well. At the oil plant small amounts of gas that comes up the oil wells with the oil and is burned off. This type of gas is not used for anything.

Oil Refinery = refines the crude oil into useable oils and other products.

Ongoing Rehabilitation = rehabilitation work that is being done all the time during each stage of mining.

Open Cut Mine = is a very large and deep pit dug with excavation equipment that is open to the sky and weather.

Ore Deposit = rocks that have a lot of minerals in them.

Permanently = forever

Petroleum = oil and gas.

Pipeline = is a long line of pipes which transports either gas, oil or water from one place to another.

Pit = where the ore is mined.

Pitting = drilling a hole about one metre deep (to your waist) with an auger (a hand held drill).

Pit Water = water from the pit where the ore is mined.

Plugged = blocked

Policy = rule

Pollution = dirty, dangerous and bad for health like noise, dust, dirty water and dirty air.

Post Mine Rehabilitation = this is the last stage of rehabilitation when the company must tidy up and rehabilitate the whole mine site.

Pressure = the force of something pushing on something else, eg, gas pushing out of the ground.

Prevent = stop

Processing = the ways of taking minerals out of the ore.

Processing Plant = is the place where the ore is processed so that the special minerals such as gold are separated from the ore.

Process Water = water out of the treatment plant which has poisonous chemicals in it.

Production Licence (PL) = a licence which gives the company permission to pump the oil and gas out of the ground to sell.

Progressive = ongoing.

Production Rates = how much end product do the customers want and how quickly can the company mine the ore or rock and extract the end product, eg. mineral or stone for gravel.

Proposal = what the company plans to do.

Prospective = an area that has a lot of specific mineral that the company is exploring (looking) for.

Protected = looked after.

Public Environmental Report (PER) = is the second stage of the Environmental Assessment (checking) process. If the NOI shows that the mining project will cause environmental impact (problems) that could cause some worry, the company must write a PER following set guidelines which explains the mining project, the possible environmental problems and how the company will look after the environment and prevent (stop) environmental problems. The public and government departments may read the Draft (first) PER and make comments about it. The PER then goes to the DBIRD (Department of Business, Industry and Resource Development) for checking. DBIRD writes a report to the company to tell them it is OK or if any changes have to be made. No mining work can begin until the PER is OK.

PVC Pipe = white plastic plumbing pipe.

Quality = how good.

Quality control = means testing all products all the time to make sure that they are always good.

Quarry = is a small open-cut mine where large amounts of non-metallic rock are dug or blasted out of the ground. These rocks are only cut or crushed, eg. for tiles or gravel. No chemicals or water are used during the mining and processing stages.

Radiological Protection = safety from radiation.

Raw Water Storage = dams and tanks used for storing clean, fresh water.

Recording = writing information (notes).

Refined = separate crude oil into useable oil and other products such as petrol, diesel, kerosene, jet fuel, wax, lubricating oil and bitumen.

Regenerate = plants that grow back after they have been cut, damaged or dug up.

Regional Survey = geological survey of the area of an exploration licence where an exploration company wants to explore.

Rehabilitate = fix.

Rehabilitation = fixing the land after mining so the plants will grow and the animals will come back.

Rehabilitation methods = ways of doing rehabilitation work.

Rehabilitation trials = small areas to practice and test rehabilitation methods.

Representative = a person who has been chosen to do something or make decisions on behalf of another person.

Research = study, learn about and watch.

Reservoir = sedimentary rock that traps oil and gas under the ground.

Respread = put soil back.

Resource = an area that has plenty of useful rock, eg. for gravel or ore that has a lot of special mineral in it eg, gold.

Resources for Rehabilitation Work = all the things that the company needs to do rehabilitation work including, workers, equipment, money, seeds, fertilisers and topsoil.

Revegetate = planting plants in areas where there aren't any plants or where the plants have been removed.

Revegetation = regrowth of plants.

Reviewed = checked.

Ripper = is a piece of equipment that is attached to a bulldozer or tractor to rip the soil.

Risk = chance.

Rock Samples = small pieces of rock, no bigger than the size of a hand.

Runoff of brown water = water which has mud in it that has been left after the land has been cleared for construction and road works.

Sample Register = a register of all samples and their test results taken by the company.

Scale = size.

Screening = way of sizing crushed rock into different sizes by shaking them through different screens which have different sized holes or gaps. The crushed rock that passes through the screens is called the undersize.

Secretary of Department = the boss of a government department.

Sedimentary basins = areas of sedimentary or layered rock 1 to 6 kilometres underground or under the sea.

Seeding = planting seeds in an area.

Seepage = leak.

Seismic Information = information about the movement of rocks under the ground.

Seismic Lines = straight tracks made by a grader. Along these tracks tiny earthquakes are made by explosives or a thump by a special seismic truck (like a kangaroo jumping) which cause vibrations to bounce off rocks deep in the ground.

Seismograph = is a special seismic computer which copies the vibrations in the shape of squiggly, wavy lines which tells the geologist the way the rocks that might trap the oil or gas or both, are arranged (set) under the ground.

Shaft = a tunnel that goes straight down into the ground. It is an underground lift.

Shifts = working different hours, eg; 12 hour shifts, 7am to 4pm or 4pm to 12 midnight.

Significance = importance.

Silt = fine sand or mud.

Slurry = the ore concentrate that looks like thin mud.

Smelting = melting ore at a high temperature so the metal can separate from the ore.

Socio-Economic = about people, industry, making business and money.

Solution = a chemical mixture.

Standards = best levels.

Stockpiles = are piles where ore that has been taken out of the pit and has been dumped. These are usually near the processing plant and away from the pit.

Stockpiling = putting the ore, crushed ore, sand, soil and gravel into piles ready to be used.

Stream Samples = samples of soil or sand from the creeks and rivers.

Strip mining = is a type of open cut mine that is mined in strips. Strip mines are not deep.

Stripping = taking away the plants and topsoil.

Substantial disturbance = changes and possible damage to the land surface (top).

Surface treatment = making the land surface (top part) ready for planting.

Tailings = rubbish water which has dirt, chemicals and other minerals left over after processing.

Tailings Management = looking after rubbish water which has chemicals and mud left over from processing.

Tailings storage (Dam) = water from the pit and processing.

Tankers = are special trucks and ships that have tanks to transport liquid long distances.

Technology = equipment and way of doing things.

Tenement = a title of land including exploration titles, mining titles and extractive mineral permits.

Terrestrial fauna = land animals.

Test Drilling = drilling to check that the ore below the surface (top) of the land has plenty of special minerals in it.

Timeframes = amount of time, eg. daily (each day), monthly (each month), annually (yearly, every year) and seasonally (same season every year).

Title = have ownership of land to do specific work, eg. mining title, exploration title.

Title holder = the company that owns the licence or permit.

Topsoil = top layer of dirt to a depth of 10cm (about the same length as a man's middle finger in which plants grow).

Toxic = cheeky, poisonous.

Trials = practice tests.

Tunnel = an underground track.

Underground mining = mining ore that is below the surface and deep in the ground. To reach this ore the miners use tunnels and shafts.

Undisturbed = not touched or damaged.

Undersize = is the finely ground ore that passes through the screens.

Vacant = not taken.

Vegetation = plants.

Moratorium = refused/knocked back/permission to explore and mine has not been given/say no to the applicant that wants to explore.

Waste = rubbish, rubbish rock, and contaminated (dirty) water after mining and processing.

Waste management = what to do with all the rubbish at the mine including rubbish, rubbish rock, dirty water, used fuel and chemicals.

Waste rock = rubbish rock.

Waste rock selective placement = separating the good waste rock from the bad waste rock.

Water management = how to look after all the water at the mine including, rain water, water used during processing, water in the tailings dam and the pit.

Water quality = how good the water is. Does it have chemicals in it?

Water treatment = making the water good.

Weathers = worn away over time by water, rain, wind, and temperature.

Weeds = are plants that are not native to the area and are unwanted.

Weed Management = what the company will do with the weeds in the mine area.

Wildcat drilling = exploration drilling for oil and gas.

Wildcat wells = exploration holes made by a drill rig.

Withdraw = remove/take away/stopped.

Work program = the work that a company plans to do.

Work rosters = work time, eg. "2 weeks on/2 weeks off" system which means that every month the workers work for 2 weeks at 12 hours a day and have 2 weeks off.

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