

Glossary of Terms

Abiotic	Physical and inorganic components of the environment.
Absorption	The property of a material that allows conversion of sound energy into heat thus reducing the amount of sound energy reflected.
Acid Base Accounting (ABA)	The analysis used to assess the potential of a material to produce acidity from sulfide oxidation taking into account its ability to also neutralize any acid formed.
Acid Mine / Metalliferous Drainage (AMD)	The outflow of acidic and usually highly metal-rich water from excavated and exposed (oxidised) material from mining operations.
Acid Neutralising Capacity (ANC)	The measure of acid neutralising compounds (usually carbonates and exchangeable bases) in rock material able to neutralise any acid produced from sulfide oxidation.
Acid Potential Ratio (APR)	Is calculated as ANC/MPA and is used to classify the material as either: NAF- Non-Acid Forming – where $ANC/MPA \geq 2$ or PAF- Potentially Acid Forming – where $ANC/MPA < 2$
Aggregation	Grouping of fish or other organisms i.e. whales in response to availability of prey or food or for spawning.
Air pollution	Degradation of air quality resulting from chemicals or other materials being released in the air from natural or man-made sources.
Air quality	The properties and degree of purity of air.
Airshed	A geographic area that, because of its common characteristics such as topography, meteorology, and climate, is affected by the same air mass.
Ambient Noise	Ambient noise includes all sound present in a given environment due to naturally occurring sound sources as well as anthropogenic sources such as traffic, commercial and industrial activities.
Anion	An ion with more electrons than protons, giving it a net negative charge.
Anthropogenic	Human in origin
Arenaceous	Geological term meaning consisting of sand or sand-like particles
Argillaceous	Geological term meaning composed of very fine-grained material, such as clay, shale, etc.
Assemblage	Collection of organisms typically associated with a particular habitat.
Attenuation	The reduction of sound energy as a function of distance from the source.
A-Weighted Sound Level	A measure of sound pressure level that corresponds with the sensitivity of human ear, which does not respond equally to all frequencies.
Background Noise	Ambient noise recorded in an absence of noise atypical for the investigated site.
Ballast Water	Water carried in ships tanks to maintain stability when a ship is lightly loaded and is normally discharged into the sea when the ship is loaded with cargo.

Beneficiation Feed Ore	(BFO) Lower grade ore (generally less than 60% Fe) that requires beneficiation (processing to increase %Fe) prior to smelting, as opposed to Direct Shipping Ore (DSO), which is higher grade and requires very little beneficiation.
Benthic	Pertaining to the surface and sub-surface sediments at the bottom of a waterbody i.e. sea or lake and the marine organisms that live on or within the surface and sediments.
Bioaccumulation	The process of the accumulation of chemicals in the tissue of organisms through any route, including respiration, ingestion, or direct contact with contaminated water or sediment.
Bioavailable	The amount or degree at which a substance is available for uptake by living organisms through ingestion, inhalation or skin contact.
Biofouling	The growth and accumulation of marine organisms on immersed surfaces of vessels and structures.
Biomass	The total amount of living material in a sample, usually expressed as dry weight mass per unit.
Biotic	Pertaining to plant and animal life.
Bivalve	A mollusc with two hinged valves.
Catchment	The area of land where collection of rainfall occurs over a natural drainage area.
Carbon monoxide	A colorless, odorless, poisonous gas produced by incomplete burning of carbon-based fuels.
Cation	An ion with fewer electrons than protons, giving it a net positive charge.
Cetacean	Members of the mammalian group Cetacea, including whales, dolphins, and porpoises.
Continuous noise	Noise with negligibly small fluctuations in the level over the period of recording.
Circum-neutral	pH value that is close to neutral (i.e. 7.00).
Colloidal	Very fine sediments (e.g. from clays) suspended in the water column.
Commonwealth Marine Area	Any part of the sea, including the waters, seabed, and airspace, within Australia's exclusive economic zone and/or over the continental shelf of Australia, that is not in State or Northern Territory waters. The Commonwealth marine area stretches from three (3) to 200 nautical miles from the coast.
Confined aquifer	When groundwaters are wedged between layers of relatively impermeable materials and are consequently under pressure.
Direct Shipping Ore	Direct Shipping Ore; high grade ore (usually greater than 60% Fe) that requires minimal processing (beneficiation) prior to smelting. DSO usually only requires a relatively simple crushing and screening beneficiation process.
Diamond Core Drilling	Method which utilises an annular diamond-impregnated drill bit attached to the end of hollow drill rods to cut a cylindrical core of solid rock.

Decibel (dB)	A unit used to express relative difference in sound power or intensity equal to ten times the common logarithm of the ratio of the two levels. In sound pressure level measurements the dB is used to compare the measured pressure of the sound wave relative to a reference pressure of 20 micropascals.
Deposit Feeder	Animals such as worms, molluscs, and crabs that feed on the particles of living or dead organic matter found within or on the sediments.
Distance Coordinates	Are distances from the relevant points on the alignment of the airport runway to the nearest point on the noise sensitive object (e.g. individual dwelling) or an area (e.g. mine accommodation camp). Distance Coordinates are used to determine the noise level associated with different types of aircraft (Boeing, Airbus, British Airspace, SAAB, Fokker, Corporate Jets and Light Aircraft) depending on the type of planes arriving at the airport under investigation and the direction of take-off or landing on the runway.
Drainage division	Broad regions of the Australian continent defined by aggregation of adjoining river basins with comparable climate or geography or shared discharge points.
Exploration Results	A formal JORC term (see JORC Code) that refers to data and information generated by exploration programmes that may be of use to investors.
Ecological effects	Long-term or short-term changes in the normal functioning of an ecological system as a result in the changes in the air quality.
Epibenthic	Refers to organisms living on top of the surface of the sea floor, which may be motile (freely moving) or sessile (attached to the substrate).
Emissions	Release of pollutants into the air from natural or man-made sources.
Equivalent Continuous Sound Pressure Level	Is the constant noise level that would result in the same total sound energy being produced over a given period by a fluctuating sound pressure level.
Façade-adjusted	Sound pressure level recorded at a distance of 1.0m from a reflective surface in a vertical plane. It normally relates to sound pressure level in front of dwellings whereby the reflected sound add 2.5dB(A) to the measured noise level.
Fe₂O₃	Iron (III) oxide
Free Field	Sound wave propagated from the source without obstruction except the friction with the ground.
Frequency	Frequency is the measure of the changes in air pressure created by the sound wave as a number of occurrences per unit time.
Gastropod	Molluscs with a single shell or no shell and ventral muscular foot for locomotion, including snails, slugs, limpets.
Ground-level concentration	Air pollution dispersion terminology that relates to air pollutant source characterisation: ground level concentration refers to the concentration of the pollutant at ground level.
Hazard	A potential source of harm/damage to life, health, property or the environment.
Hertz (Hz)	Unit of frequency in the SI system, expressed by cycles per second.

Hydrocarbons	Chemical compounds containing only hydrogen and carbon in various combinations.
Hydrogeochemical	The study of the chemical characteristics of ground and surface waters as related to areal and regional geology.
Hydrogeological	The area of geology that deals with the distribution and movement of groundwater in the soil and rocks of the Earth's crust, (commonly in aquifers).
Hydrographic	Information pertaining to the surveying and charting bodies of water, such as seas, lakes, and rivers.
Hydrology	The movement of surface water in relation to land.
Indicated Mineral Resource	A formal JORC term (see JORC Code) referring to that part of a Mineral Resource (see definition below) for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence.
Infauna	Fauna that lives in sediments within or below the seafloor.
Inferred Mineral Resource	A formal JORC term (see JORC Code) referring to that part of a Mineral Resource (see definition below) for which tonnage, grade and mineral content can be estimated with a low level of confidence.
Intertidal	The zone between the high and low water marks on a shore.
JAMBA	Japan Australia Migratory Bird Agreement
JORC Code	The Joint Ore Reserves Committee Code is a Code of practice which sets minimum standards for public reporting in Australia and New Zealand of Exploration Results, Mineral Resources and Ore Reserves.
Karstic	An area of irregular limestone in which erosion has produced fissures, sinkholes, underground streams, and caverns.
Listed waste	Materials listed under Schedule 2 of the <i>Waste Management and Pollution Control Regulations (Admin)</i> considered to be harmful to people and/or the environment if disposed of incorrectly.
Littoral	The zone which extends from the high water mark to nearshore areas that are permanently submerged.
Macroalgae	Algae that is visible to the naked eye, commonly referred to as seaweed.
Macroinvertebrates	Small aquatic invertebrates that can be seen with the naked eye, such as insects, crayfish, snails, mussels, clams, fairy shrimp, etc
Maximum Potential Acidity (MPA)	The maximum amount of sulfuric acid produced from complete oxidation of sulfide minerals in the rock material. It is given as kgH ₂ SO ₄ /ton and determined by multiplying the Sulfide-S values (in %) by 30.6 which accounts for the reaction stoichiometry for the complete oxidation of pyrrhotite and pyrite by O ₂ to Fe(OH) ₃ and H ₂ SO ₄ .
Measured Mineral Resource	A formal JORC term referring to that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence.

Megafauna	Large marine fauna species commonly meant to include cetaceans (i.e. whales, dolphins, and porpoises) dugong, marine turtles and pinnipeds (walrus, seals and sea lions).
Micrometer	A unit of length equal to one millionth of a meter. This unit is used to measure particle sizes.
Mineral Resource	A formal JORC term that refers to a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality, and quantity there are reasonable prospects for eventual economic extraction.
MSL	Mean Sea Level
Net Acid Producing Potential (NAPP)	A measure used in ABA analysis. It is given as $\text{kgH}_2\text{SO}_4/\text{ton}$ and determined by subtracting the ANC from the MPA i.e $\text{NAPP} = \text{MPA} - \text{ANC}$. Conceptually, a negative NAPP indicates all acid produced is neutralised and a positive NAPP indicates the material is net acid producing.
Nitrogen dioxide	A gas (NO_2) consisting of one nitrogen and two oxygen atoms.
Non-Acid Forming (NAF)	Rock material which is highly unlikely to produce acid when exposed to air and water and where the Acid Potential Ratio (ANC/MPA) is ≥ 2 .
NSED	The National Strategy for Ecologically Sustainable Development (NSED) defines ecologically sustainable development (ESD).
Oolite	A sedimentary rock formed from ooids, which are spherical grains composed of concentric layers. The oolites referred to in the Sherwin Formation of the Project Area comprise ooids formed from concentric layers of hematite (iron oxide), or in some cases siderite (iron carbonate).
Ore Reserve	Is a formal JORC term referring to the economically mineable part of a "Measured" and/or "Indicated" Mineral Resource (see definitions above). It includes diluting materials and allowances for losses, which may occur when the material is mined.
Ozone (O3)	A gas which is a variety of oxygen with three oxygen atoms stuck together into a single molecule.
Particulate matter	A criteria air pollutant. Particulate matter includes dust, soot, and other small components of solid materials that are released into the air.
Perennial	In relation to streams, when flow is permanent.
PM10	A criteria air pollutant that is particulate matter in ambient air with diameter less than or equal to 10 microns.
Potentially Acid Forming (PAF)	Rock material which is likely to form acid when exposed to air and water and the Acid Potential Ratio (ANC/MPA) is < 2 .
Probable Ore Reserve	A formal JORC term referring to the economically mineable part of an "Indicated", and in some circumstances, a "Measured" Mineral Resource.
Proved Ore Reserve	Is a formal JORC term referring to the economically mineable part of a "Measured" Mineral Resource (see definition above). It includes diluting materials and allowances for losses which may occur when the material is mined.

Ramsar wetland	The <i>Convention on Wetlands of International Importance</i> known as the Ramsar Convention which includes a list of globally important wetlands.
Reverse Circulation Drilling	A percussion drilling method, utilising a rotating bit and high-pressure air. Samples are brought to the surface as rock chips, therefore, the method is not as accurate and informative as diamond core drilling, but much faster and less expensive.
Riparian	The zone of vegetation adjacent to streams, generally 10-50m in width on sides of banks.
Salinity	The dissolved salt content of a body of water.
SIF	Sherwin Ironstone Formation, which hosts all the known iron mineralisation and deposits.
Sound Pressure	The sound pressure is the total instantaneous pressure exerted by the sound wave on a known point.
Sound Pressure Level	The sound pressure level, in decibels, of a sound is 20 times the logarithm to the base of 10 of the ratio of the sound pressure to the reference pressure (i.e. 20 micropascals).
Source	Any place from which air pollutants are released.
Stationary source	A fixed source of air pollutants (e.g. industrial plant, Officeworks).
Sublittoral	Zone permanently covered by seawater (see sub-tidal).
Sub-tidal	Zone permanently covered by seawater.
Sulfur dioxide (SO₂)	A criteria air pollutant. Sulfur dioxide is a gas produced by burning coal, most notably in power plants.
Taxa	A group of organisms considered to be sufficiently distinct from other groups to be treated as a separate unit e.g. species, genera, families.
Teleost	Ray-finned fishes.
Total S	Total sulfur content.
Trophic Level	A theoretical position an organism occupies in a food chain; primary producers, herbivores, carnivores and decomposers each occupy a different trophic level.
Turbidity	A measure of the passage of light through the water or in which visual depth is restricted, as a result of suspended matter in the water column.
Water strike	Location at which significant moisture or groundwater flow is intersected during bore drilling.