

Section 7

Glossary of Terms, Acronyms and Symbols

PREAMBLE

This section provides an overview of the technical terms, acronyms and symbols used throughout this document that may be unfamiliar to those who are not familiar with the more technical aspects of this assessment.

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GLOSSARY OF TERMS

A horizon – the top layer of the soil profile containing decomposed organic materials. Commonly referred to as ‘topsoil’.

acid – substance with a pH less than 7.0; the lower the pH, the higher the corrosive ability of the substance.

acoustics – the science of sound and vibration.

agricultural resources – the land on which agriculture is dependent and the associated water resources (quality and quantity) that are linked to that land.

airblast overpressure – a shock wave from the blast transmitted through the air, normally measured in dB(Linear).

air quality criteria – quantitative relationship between a pollutant’s dose, concentration, deposition rate or any other air quality-related factors, and the related effects on receptors, e.g. humans, animals, plants, or materials. Air quality criteria serve as the scientific basis for formulating ambient air quality standards or objectives.

alkaline – having a pH greater than 7.0.

amenity – the desirability of an area.

amphibians – animals (such as frogs) adapted to live both on land and in water.

Applicant – person, organisation or company proposing to carry out an activity / seeking development consent.

aquifer – rock or sediment in a formation, group of formations, or part of a formation which is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.

archaeology – the scientific study of human history, particularly the relics and cultural remains of the distant past.

artefact – anything made by human workmanship, particularly by previous cultures (such as chipped and modified stones used as tools).

B horizon – material located below the A horizon material and above the parent rock. Commonly referred to as ‘subsoil’

backfill – material used to fill a created void.

background level – the concentration (deposition) level of a pollutant which must be added to the concentration (deposition) level of the modelled sources in order to obtain a total.

background dust level – dust level in the absence of mining and processing activities.

background noise level – noise level in the absence of mining and processing activity.

bank cubic metre (bcm) – a volume of 1m³ in the ground prior to disturbance.

baseline data – a body of information collected over time to define specific characteristics of an area (e.g. species occurrence or noise levels) prior to the commencement of an activity (e.g. a mining operation). Baseline data allows any impacts arising from the activity to be identified by comparison with previously existing conditions.

baseline monitoring – monitoring performed prior to the commencement of site activities.

batter – an engineered slope of soil or rock fill on either side upslope or downslope of a road, embankment or mine waste storage.

bedrock – unweathered rock lying below the soil and weathering profile.

biodiversity – the full range of living things and the ecosystem in which they live.

blasting – the operation of breaking rock by means of explosives.

bore – a hole, usually of less than 20 cm diameter, sunk into the ground and from which water is pumped.

brackish – a term for water that contains noticeable proportion of salt but far less than salt water.

buffer – a physical barrier / structure or width of land that encloses, partially encloses, or defines a particular environment. A buffer serves to minimise the impacts of non-desirable external influences on the adjoining environment.

bulldozer – an item of tracked mobile earth moving equipment fitted with a front blade and with rear rippers used for pushing and ripping soil and rock.

bund – embankment of clay or weathered rock emplaced for visual or acoustic screening or to control surface water flow.

catchment – drainage area of a reservoir, river, creek, etc.

catchment area – the area determined by topographic features within which rainfall will contribute to runoff at a particular point.

conductivity – the measurement of the ability of a substance (either a measure of solid, liquid or gas) to transmit electricity; used to determine the amount of salt in a soil sample.

confluence – junction of streams.

conservation – the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations, while maintaining its potential to meet the needs as aspirations of future generations.

contractor – specialist brought in to perform a specific task, such as the construction of mine infrastructure or the excavation (mining) of the open cut.

cross-section – a two-dimensional representation of an area presented as if the area had been cut along its length.

cumulative – increasing by successive additions.

Development Application - an application a local council or other Authority for approval of an activity deemed to require an approval prior to commencement.

drainage line – a longitudinal depression in the landscape often without a bed or bank that intermittently carries runoff.

drawdown – the difference between the water level observed during pumping and the non-pumping water level (static water level or static head).

drilling – the action of boring holes (usually less than 30 centimetres in diameter) into the ground, typically to establish a water bore to investigate the geology found at depth or to allow explosives to be placed for blasting.

dust – particles of mostly mineral origin generated by erosion of surfaces, the mining and handling of materials, farming etc.

dust deposition – dust particles that settle out from the air – measured in grams per square metre per unit month ($\text{g/m}^2/\text{month}$).

dust deposition gauge – instrument set up to record the rate of deposition of dust.

ecology – the relationship between living things and their environment.

ecologically sustainable development (ESD) – using, conserving and enhancing the community's resources so that ecological processes on which life depends are maintained and the total quality of life, now and in the future can be increased.

ecosystem – a functional unit of energy transfer and nutrient cycling in a given place. Includes all the relationships within the biotic community and between the biotic components of the system.

Elliot trap – a baited cage used in faunal surveys to capture small animals.

emission – a discharge of a substance (e.g. dust) into the environment.

emissions inventory – an information, collection and processing system containing data on emissions of, and sources of, air pollution from both man-made and natural causes.

Environmental Impact Statement (EIS) – a formal description of a project and an assessment of its likely impact on the physical, social and economic environment. It includes an evaluation of alternatives and an overall justification of the project. The EIS is used as a vehicle to facilitate public comment and as the basis for analysing the project with respect to granting approval under relevant legislation.

environmental officer – person at a mine who reviews environmental compliance and coordinates monitoring.

ephemeral – intermittent water flow, not permanent, e.g. a stream that flows only seasonally or after rainfall or a lake that periodically dries out.

erosion – the wearing away of the land surface (whether natural or artificial) by the action of water, wind and ice.

evaporation – the loss of water as vapour from the surface of a liquid that has a temperature lower than its boiling point.

evening period – the period from 6:00pm to 10:00pm (when relating to noise).

excavator – item of earthmoving equipment fitted with a bucket on an articulated boom and used for digging material from a face in front of, or below the machine.

exploration program – a program set up by a company to explore for mineral deposits (typically involving aerial survey, ground survey, drilling and geophysical assessment).

fault – a fracture in rock along which there has been observable displacement.

fauna – a general term for animals (birds, reptiles, marsupials, fish etc.) particularly in a defined area or over a defined time period.

feral – domesticated animals that have become wild.

flora – a general term for plant, particularly those found in a defined area or characteristic of a defined time period.

flyrock – rock that is propelled into the air by the force of an explosion beyond the defined blast envelope. Usually originates from pre-broken material on the surface or upper open blast face.

front-end loader – machine used to lift and place soil, earth, rocks, etc. on a construction or mine site.

fugitive emissions – emissions not entering the atmosphere from a stationary vent (stack). Examples of fugitive dust sources include vehicular traffic on unpaved roads, handling of raw materials, wind erosion of dusty surfaces.

geochemical – chemical aspects of the composition on the earth's crust.

geological reserves – the measured total quantity of in-situ resource in a deposit, prior to consideration of mining parameters.

grader – an item of earthmoving equipment, rubber tyred and fitted with a centrally mounted blade and rippers used to shape and trim the ground surface, particularly unsealed roads

gradient – rate of change of a given variable (such as temperature or elevation) with distance.

ground vibration – oscillatory motion of the ground caused by the passage of seismic waves originating from a blast (or other force).

groundwater – the water contained in interconnected pores located below the water table in an unconfined aquifer or located in a confined aquifer.

groundwater dependent ecosystems – ecosystems that use groundwater as part of survival, and can potentially include wetlands, vegetation, springs, base flows, cave ecosystems, river pools and hanging swamps.

haul road – road used in a mine for haulage of ore and waste rock and for general site access.

haul truck – a truck specifically designed for hauling and tipping soil or rock within the mine or similar situation.

heavy metals – normally trace metals which occur in ore deposits which, depending on their concentration may be environmentally hazardous e.g. copper, lead and zinc.

hydraulic conductivity (k) – the rate of flow of water in an aquifer through a cross section of unit area under a unit hydraulic gradient, at the prevailing temperature. Usually expressed in units of metres per second or metres per day.

hydraulic gradient – the direction of flow of groundwater.

in situ – a term used to distinguish material (e.g. rocks, minerals, fossils, etc.) found in its original position of formation, deposition, or growth, as opposed to transported material.

indigenous – belonging to, or found naturally in, a particular environment.

inflow – flow directed into a particular feature, such as an open cut.

inter-generational equity – the principle that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

inversion – generally used in meteorology with respect to an increase of temperature with height in contrast with the usual decrease of temperature with height in the troposphere. An inversion layer is distinguished by its large stability, which limits the turbulence and therefore the dispersion of pollutants.

light vehicle – a vehicle that has a gross vehicle mass of 4.5 tonnes or less.

Local Environmental Plan (LEP) – a plan developed by a council to control development in part or all of their local government area.

maximum instantaneous charge (MIC) – the maximum amount of explosives detonated during each delay during a blast.

mine water – all water used in mining and processing.

mitigation measures – measures employed to reduce (mitigate) an impact (such as the construction of a noise barrier to reduce sound emissions).

mobile equipment – wheeled or tracked self-propelled equipment such as trucks, front-end loaders, and bulldozers.

monitoring – the regular measurement of components of the environment to establish environmental standards are being met.

net acid-generation (NAG) testing – experimental determination of the potential of a material (e.g. waste rock) to generate acid upon exposure to air and water.

net acid-producing potential (NAPP) – potential of a material (e.g. waste rock) to generate acid upon exposure to air and water.

neutral – neither acidic nor basic (e.g. a pH equal to 7.0).

night-time period – the period from 10:00pm to 7:00am Monday to Saturday and 10:00pm to 8:00am on Sundays and Public Holidays (when relating to noise).

noxious – introduced species considered to be harmful to native species or to the habitat of native species.

ore – material (usually rock) with a sufficient concentration of a valuable metal or mineral to justify mining and processing the material to extract the metal or mineral.

peak airblast – the maximum level of the airborne shockwave resulting from the detonation of explosives.

peak particle velocity (ppv) – a measure of ground vibration reported in millimetres per second (mm/sec).

permeability – a material property relating to the ability of the material to transmit water.

pH – a measure of the degree of acidity or alkalinity of a solution; expressed numerically (logarithmically) on a scale of 1 to 14, on which 1 is most acid, 7 is neutral acid, and 14 is most basic (alkaline).

piezometer – a bore drilled specifically for the monitoring of groundwater levels and/or water quality.

piezometric surface – water table surface.

pollution – the alteration of air, soil, or water as a result of human activities such that it is less suitable for any purpose for which it could be used in its natural state.

porosity – the percentage of a solid material that consists of voids and areas of space, or the ratio, expressed as a percentage of the volume of the pores or interfaces of a substance to the total volume of the mass. A measure of its ability to hold liquid.

potable – water suitable for human consumption.

precautionary principle – the principle that, if a threat of serious or irreversible environmental damage exists, lack of full scientific certainty that the damage will occur should not be used as a reason to postpone measures to prevent that environmental damage.

Project Site – the area of land which corresponds with the area of application for development consent and containing the Mining Lease Application area.

Rating Background Level – the overall single-figure background noise level representing each assessment period (day / evening / night) over the whole monitoring period.

rehabilitation – the preparation of a final landform after mining and related activities and its stabilisation with grasses, trees and shrubs.

resource – an estimate of potentially usable mineral solution in a defined area based on preliminary information.

revegetation – replacement of vegetation, principally grasses and legumes on areas disturbed by mining activities.

runoff – that portion of the rainfall falling on a catchment area that flows from the catchment past a specified point.

run-of-mine (ROM) – mined ore as loaded directly from the mining face and delivered to a particular area (generally a ROM pad).

salinity – the total content of dissolved solids in groundwater, commonly expressed as parts of dissolved solids per million parts of solution, or milligrams of dissolved solids per litre of solution (mg/L);

sampling period – range of time over which samples are taken.

sedimentation – process or rate of depositing of sediment.

sequence (geological) – layers of (predominantly) sedimentary rocks sourced from a common geological environment or period.

sight distance – the distance along the road visible to the driver. It is measured along the normal travelled path of a roadway from the driver's location (such as at an intersection) to a specified height above the roadway when the view is unobstructed by traffic.

species – a taxonomic grouping of organisms that are able to interbreed with each other but not with members of other species.

species diversity – a measure of the number of different species in a given area.

stakeholder – person, group or organisation or company with an interest in an activity or outcome.

stockpile – a pile used to store material (such as ROM ore or soil) for future use.

storage capacity – the maximum volume of liquid able to be retained in a dam.

stormwater – surface water runoff immediately after rainfall.

stratigraphy – the succession and age of strata of rock and unconsolidated material.

stream order – defined by the Strahler stream order used to define stream size based upon a hierarchy of tributaries.

stygo fauna – aquatic invertebrates living within the groundwater systems. This includes 'obligate stygo fauna' that represent endemic species that relate to particular regions or ecosystems only.

sub-catchment – a smaller area within a catchment drained by one or more.

subsoil – the layer of soil lying below the topsoil; usually contains less organic matter and is less fertile but is essential for retention of moisture for plant growth. Also referred to as the 'B Horizon'.

surface waters – all water flowing over, or contained on, a landscape (e.g. runoff, streams, etc.).

survey transect – a path along which one records and counts occurrences of the phenomenon of study (e.g. plants).

suspended solids – analytical term applicable to water samples referring to material recoverable from the sample by filtration.

temperature inversion – an increase in air temperature with height (see inversion).

terrestrial – of or relating to the land, as distinct from air or water.

threatened species – a species specified in Part 1 or 4 of Schedule 1, Part 1 of Schedule 1A or Part 1 of Schedule 2 of the TSC Act 1995 or listed in the categories as defined in Section 179 of the EPBC Act 1999.

topography – the physical relief and contour of a region.

topsoil – the surface layer soil profile containing the main percentage of organic material. Also referred to as the 'A Horizon'.

total suspended particulates (TSP) – the mass of all particulate matter suspended in air.

total suspended solids – a common measure used to determine concentrations of fine materials present in water.

transmissivity – the rate at which groundwater is transmitted at a specific hydraulic gradient through a rock mass of a specified width.

vehicle movement – a one-way trip.

vibration – oscillating movement.

visual amenity – attractiveness to the eye.

watercourse – stream or river invariably with running water.

wind direction – the direction from which the wind, averaged over a certain period of time, is blowing.

wind rose – diagrammatic representation of wind direction, strength, and frequency of occurrence over a specified period.

waste rock – non-economic material to be removed from the mine to allow access to the resource.

waste emplacement – structure to hold rock, formed by the placement of rock in a random and/or structured manner.

water quality criteria – generally refers to numeric levels specified for key water quality variables, such as electrical conductivity or pH, which can be measured to determine the suitability of water for human consumption, supporting aquatic life, etc.

yield – (of a water bore) - the amount of water actually withdrawn.

Glossary of Acronyms, Symbols and Units

° – degrees

°C – degrees Celsius

μS/cm – microsiemens per centimetre; a measure of electrical conductivity

% – percentage

\$M – million dollars

100 year flood limit – predicted extent of a 1 in 100 year flood occurrence

< – less than

> – greater than

AADT – Average Annual Daily Traffic

ABS – Australian Bureau of Statistics

AC – Acid Consuming

AHD – Australian Height Datum; in metres (similar to metres above mean sea level)

AHIMS – Aboriginal Heritage Information Management System

ANZECC – Australian and New Zealand Environment and Conservation Council

ARMCANZ - Agriculture and Resource Management Council of Australia and New Zealand

AS – Australian Standard

Ag – silver

Au – gold

bcm – bank cubic metre – a volume of 1m³ in the ground prior to disturbance

BOM – Bureau of Meteorology

cm – centimetre (unit of length) = 0.01 metre

CMA – Catchment Management Authority

CW-CMA – NSW Central West Catchment Management Authority

CWA – Country Women's Association

D% – dispersion percentage

dB – decibel. The unit used to express sound intensity

dB(A) – decibels, A-weighted scale. The unit used for most measurements of environmental noise. The scale is based upon typical responses of the human ear to sounds of different frequencies.

DECC – Department of Environment and Climate Change

DECCW – Department of Environment, Climate Change and Water (NSW). Now OEH

DGRs – Director-General's Requirements

DP – Deposited Plan

DP&E – NSW Department of Planning and Environment

DP&I – Department of Planning and Infrastructure (NSW)

DPI – Department of Primary Industries (NSW)

DRE – Division of Resources and Energy

EC - electrical conductivity

EIS – Environmental Impact Statement

EPA – Environment Protection Authority (NSW)

EP&A Act – Environmental Planning and Assessment Act 1979 (NSW)

EP&A Regulation – Environmental Assessment and Planning Regulation 2000

EPBC Act – Environment Protection and Biodiversity Conservation Act 1999

EPL – Environment Protection Licence

ES – Environmental Strategies

ESD – Ecologically Sustainable Development

EL – Exploration Licence

FDI – Fire Danger Index

FEL – front-end loader



g – gram (= 0.001 kilogram)

GCC – Girilambone Copper Company

g/m²/month – grams per square metre per month unit for deposited dust

GHG – greenhouse gas

ha – hectare (100 m x 100 m)

JRPP – Joint Regional Planning Panel

kg – kilogram (weight measure)

kL – kilolitre (thousand litre)

km – kilometre (= 1 000 metres)

km² – square kilometres

km/hr – kilometres per hour

lcm – loose cubic metres

L – litre

L/day – litres per day

L/s – litres per second

L_{Aeq} – the L_{Aeq} is the energy average of the varying noise over the sample period and is equivalent to the level of a certain noise which contains the same energy as the varying environment. It is a common measure of environmental and traffic noise.

L_{Aeq} 1 hour – the “equal energy” average noise level over 60 minutes – used for assessing impacts of motor vehicles.

L_{Amax} – the absolute maximum noise level measured in a given time interval.

L_{AN} – the A-weighted sound pressure level exceeded by N% of a given measured period.

LALC – Local Aboriginal Land Council

LEP – Local Environmental Plan

LGA – Local Government Area

m – metre

M – million

m AHD – metres Australian Height Datum

m BGL – metres below ground level

m² – square metre

m³ – cubic metre

MDB – Murray-Darling Basin

mg – milligram (weight unit)

mg/L – milligrams per litre (parts per million)

MIC – Maximum Instantaneous Charge

ML – Mining Lease

ML – Megalitre (1 million litres) – typically of water

ML/a – megalitres per annum

ML/day – megalitres per day

ML/year – megalitres per year

mm – millimetre (= 0.001 metres)

MOP – Mining Operations Plan

m/s – metres per second

Mt – million tonnes (metric tonne = 1 000 kg)

Mtpa – million tonnes per annum

NAF – non-acid forming

NAPP – net acid-producing potential

NATA – National Association of Testing Authorities

NGER Act – National Greenhouse and Energy Reporting Act 2007

NNTT – National Native Title Tribunal

NOW – NSW Office of Water

NP&W Act – National Parks and Wildlife Act 1974 (NSW)

NRM – Natural Resource Management

NTS Corp – Native Title Services Corporation

Nyngan LALC – Nyngan Local Aboriginal Land Council

ENVIRONMENTAL IMPACT STATEMENT

Section 7 – Glossary of Terms, Acronyms and Symbols

TRITTON RESOURCES PTY LTD

Avoca Tank Project

Report No. 859/02

OEH – Office of Environment and Heritage

On Site CHM – On Site Cultural Heritage Management

OTEK – OTEK Australia Pty Ltd

PAF – potentially acid forming

PAF-LC – Potentially acid forming – low capacity

pH – measurement indicating whether water or soil is acid or alkaline

POEO Act – Protection of the Environment Operations Act 1997

PPV – Peak Particle Velocity

RAP – Regional Action Plan

RAPs – Registered Aboriginal Parties

RFS – Rural Fire Service

ROM – Run-of-Mine

RMS – Roads and Maritime Services

RSL – Returned Serviceman's League

RTA – Roads and Traffic Authority (NSW) – now RMS

SA – Statistical Area

SEPP – State Environmental Planning Policy

SR – Shire Road

SS – State Suburb

SWL – standing water level

t – tonnes

TDS – total dissolved solids – expressed in mg/l

tpa – tonnes per annum

TSC Act – Threatened Species Conservation Act 1995 (NSW)

TSP – Total Suspended Particulate

UC – uncertain

V – volt

V:H – vertical to horizontal ratio

WAL – Water Access Licence

Western CMA – Western Catchment Management Authority

WM Act – Water Management Act 2000

WSP – Water Sharing Plan



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