% percent

μg/m³ micrograms per cubic metre

μm microns
< less than
> greater than

μg/g Microgram per gram μg/L micrograms per litre

μS/cm microseconds per centimetre

⁰C Degrees Celsius

AAPA Aboriginal Areas Protection Authority

AASS Actual Acid sulphate soils
ABS Australian Bureau of Statistics

AC Acid consuming

Accretionary wedge Sedimentary rocks accreted onto a plate boundary through tectonic

movement.

ACHA
Aboriginal Cultural Heritage Act 2003
ADCP
acoustic doppler current profilers
AEP
annual exceedance probability
AGO
Australian Greenhouse Office
AHD
Alternative Investment Market
AKAU
Aker Kvaerner Australia

Al Aluminium

alluvium Unconsolidated sediment deposited in a fluvial system.

ALRA Commonwealth Aboriginal Land Rights Act

AMC Australian Magnesium Corporation
AMSA Australian Maritime Safety Authority

Amsul Ammonium Sulphate
ANC Acid neutralising capacity

animal taxa

Taxa are taxonomic units describing organisms in a hierarchical grouping. The

level of taxa commonly referred to in the description of flora and fauna are:

Family, Genus and species

ANZECC Australia and New Zealand Conservation Council

APIA Australian Pipeline Industry Association
AQIS Australian Quarantine Inspection Service

Aquifer any geological formation containing or conducting ground water, esp. one that

supplies the water for wells, springs, etc.

Aquitard An aquitard is a zone within the earth that restricts the flow of groundwater

from one aquifer to another

ARI Average Recurrence Interval

AS Australian Standards, Standards Australia

As Arsenic

AS/NZS Australian Standards/New Zealand Standards

ASS Acid sulphate soils
ASU Air separation unit

ATSIC Aboriginal and Torres Strait Islander Commission

Autodock System utilised to secure the vessel in position against the wharf using a

hydraulic claw and swing arm.

av Average

BBKY Darumbal and Barada, Barna, Kabalbarra and Yetimarla

Beneficiation Beneficiation is a combination of processes through which ore is reduced to

particles that can be separated into mineral and waste, the former suitable for

further processing or direct use.

Berm Horizontal strip or shelf built into an embankment or cut to break the continuity

of the slope.

Bioregion A specific bio-geographic zone with a repeating or similar pattern biotic (flora

and fauna) and abiotic (soils, terrain, geography, climate and rainfall) factors.

BMR Bureau of Mineral Resources

BoM Bureau of Meteorology

Bonn Convention Convention on the Conservation of Migratory Species of Wild Animals.

BRIC countries Brazil, Russia, India and China

Bund Raised bank around tanks and containers, designed to capture all contained

liquids in a spill.

Ca Calcium

CaCO₃ Calcium carbonate

CAMBA China-Australia Bird Agreement
CAR Comalco Alumina Refinery
CASA Civil Aviation Safety Authority

Cathodic Protection A technique utilised to control the corrosion of a metal surface by making that

system surface the cathode of an electrochemical cell.

CCD Counter-current decantation

CCRMP Curtis Coast Regional Management Plan

Cd Cadmium

CDEP Community Development Employment Program

CG Coordinator-General

CHAZOP Control Hazard and Operability Study

CHEM Services Chemical Hazards and Emergency Management Services
CHIMA Cultural Heritage Investigation Management Agreement

CHMP Cultural Heritage Management Plan
CHMS Cultural Heritage Management Strategy

CI Chlorine

CLR Contaminated Land Register

Co Carbon monoxide and Cobalt particulate

CO₂ Carbon dioxide

CO_{2-e} CO₂ equivalent

CO_{2-e}/y CO₂ equivalent per year

CO₃ Carbonate

Colloidal material Finely divided solids which will not settle but which may be removed by

coagulation

colluvium loose earth material that has accumulated at the base of a hill, through the

action of gravity

CQRGMF Central Queensland Regional Growth Management Framework

CQGP Central Queensland Gas Pipeline
CQPA Central Queensland Ports Authority
CQU Central Queensland University

Cr Chromium

CSC Calliope Shire Council

CSIRO Commonwealth Scientific and Industrial Research Organisation

Cu Copper

DAFF Commonwealth Department of Agriculture, Fisheries and Forestry

dB Decibel

dd data deficient

DEH Department of Environment and Heritage; formerly Environment Australia

(Commonwealth Government)

DES Department of Emergency Services

DFS Definitive Feasibility Study

DGSM Act

Dangerous Goods Safety Management Act 2001

DGT

Diffuse Gradients in Thin films (passive samplers)

DHCS

Department of Health and Community Services

DLGPSR Department of Local Government Planning and Sport and Recreation

DME Department of Mines and Energy

DMR Department of Main Roads

dmt dry metric tonnes

dmt/y dry metric tonnes per year

DNRW Department of Natural Resources and Water

DO Dissolved oxygen

DoH Department of Housing

DOS Degree of saturation

DPA Dugong Protection Area

DPIF Department of Primary Industries and Fisheries

DSL Digital Subscriber Line technology transmits data over phone lines without

interfering with voice service.

DWT Dead weight tonnes

e.g. for example

EC Electrical conductivity. A measure of mineral salt content of groundwaters

EDL Energy Developments Limited

EEO Energy efficiency operations **EHS** Environment, health, and safety ΕIΑ **Environmental Impact Assessment** EIL environmental investigation levels EIS **Environmental Impact Statement EMP Environmental Management Plan EMR Environmental Management Register EMS** Environmental Management System. endemic Native to or confined to a certain region.

ENM Noise modelling program

EP Act Environmental Protection Act 1994
EPA Environmental Protection Agency

EPAV Environmental Protection Agency for Victoria

EPBC Act Environmental Protection and Biodiversity Conservation Act 1999.

Ephemeral Running fresh water channels that are periodically inundated

EPM Exploration Permit for Minerals
EPP Environmental Protection Policy
ERA Environmentally Relevant Activity

ESA Equivalent standard axle

ESD Ecologically sustainable development
ESN Enhanced saprolite neutralisation

ESP Exchangeable Sodium Percentage; the proportion of sodium adsorbed onto a

material surface as a proportion of the total cation exchange capacity.

Eutrophic, The reduction of oxygen in a water body due to high levels of nutrification and

Eutrophication subsequent consumption by biota

EVR Endangered, Vulnerable and/or Rare species

FBA Fitzroy Basin Association

Fe Iron
FeS₂ Pyrite

FHA Fish Habitat Areas

FIFO fly-in/fly-out
FoS Factor-of-Safety

g/m²/month grams per mitre squared per month

g/t grams per tonne

gabions Permeable heavy barriers to assist in the protection of soil banks by

preventing erosion

GAIN Gladstone Area Industry Network
GAMS Gladstone Airshed Modelling System

GAPDL Gladstone Area Promotion and Development Limited

GAWB Gladstone Area Water Board

GBR Coast MP Great Barrier Reef Coast Marine Park

GBRMP Great Barrier Reef Marine Park

GBRMPA Great Barrier Reef Marine Park Authority
GBRWHA Great Barrier Reef World Heritage Area

GCC Gladstone City Council
GDP Gross Domestic Product

GEA Gladstone Engineering Alliance

GEIDB Gladstone Economic and Industry Development Board

genset Generator set
GHG Greenhouse Gas

GHIMA Cultural Heritage Investigation Management Agreement

Gilgai Black soil substrate with small localised depressions that are ephemerally

inundated, usually associated with Brigalow vegetation

GIS Global Information System

GJ Giga Joule

GJ/y Giga Joules per year

GL Giga litre

GNP Gladstone Nickel Project

GPNL Gladstone Pacific Nickel Limited

GPS Gladstone Power Station

GQAL Good quality agricultural land

GRP Gross Regional Product

GSDA Gladstone State Development Area

GSP Gross State Product

GWDB Groundwater Resource Information

GWh Gigawatt hours
H Horizontal
H₂O Water

 H_2O_2 Hydrogen peroxide H_2S Hydrogen sulphide H_2SO_4 Sulphuric acid

ha Hectares

HAT Highest Astronomical Tide
HAZID hazard identification

Hazmat truck Emergency services vehicle with specialised hazardous material treatment

capabilities

HAZOP Hazard and Operability Study

HCO₃ Bicarbonate ion

HDD Horizontal directional drilling
HDPE High Density Polyethylene

Heavy vehicle Parking areas for heavy vehicles

hardstands

Hg Mercury

HIL health-based investigation level



HIRARC Hazard identification, risk assessment and risk control methodology

HMS High magnesium saprolite

HP High pressure

HPAL High pressure acid leach
HPAL High-pressure acid leach
HPZ Habitat Protection Zones

HSE Health, Safety and Environment

HSEC Health, Safety, Environment and Community.

HSEMP Health, Safety and Environment Management Plan

HSIS Hazardous Substances Information System

HW Highly weathered

i.e. that is

IAS Initial Advice Statement

ICHA Initial Cultural Heritage Assessment

IDAS Integrated Development Assessment System

ILUA Indigenous Land Use Agreement
IMO International Maritime Organisation

Intertidal between high and low water

IP Act Integrated Planning Act 1997

IRMS integrated risk management system

IRSA Inter-ramp slope angle

ISO International environmental management standard IUCN International Union for the Conservation of Nature

JAMBA Japan-Australia Migratory Bird Agreement

JORC Australasian Joint Ore Reserves Committee

JSA Job Safety Analysis

K Potassium kg kilogram

Kg H₂SO₄/t kg of sulphuric acid per tonne

kg/ha kilogram per hectare

kL kilolitres

kL/day kilolitres per day

km kilometre

km/h
 km²
 kquare kilometre
 KP
 Kilometre point
 kPa
 Kilo Pascal

KPIs key performance indicators

kV kilo volts

kVA Kilo Volt Amps

L litre



Glossary and Abbreviations

L/s Litres per second L/y litres per year

 $L_{A1, 10, 90}$ Noise levels exceeded 1%, 10% or 90% of the time

LAT Lowest Astronomical Tide

Lateritic Nickel, Nickel ores formed through weathering of lateritic soils

Laterites

lc least concern

LCZ landscape character zones
LGA Local government area

Liquor, Residue liquor a liquid substance (water) that is a solution (or emulsion or suspension) used

to carry the minerals of interest in the process

lithology The microscopic study, description, and classification of rock

LMS Low magnesium saprolite

LOM Life of mine LP Low pressure

LP(P&SR) Act Land Protection (Pest and Stock Route) Management Act 2002

LR Low risk m metre M million

m/d metres per day
m/m metres/metre
m/s metres per second
m² square metre

m² square metre m³ cubic metres

m³/h cubic metres per hour
m³/s cubic metres per second
m³/y cubic metres per year
mbgl Metres below ground level
MEB Medical Entomology Branch

mg milligram
Mg Magnesium

mg/L milligrams per litre

MHF major hazard facility

ML million litres or megalitre

ML Mineral Lease
ML/d Megalitre per day

ML/y million litres or megalitre per year

mm millimetre mm millimetre

mm/day millimetres per day
Mm³ million cubic metres

Mn Manganese

MnO₂ manganese dioxide

MNPL Marlborough Nickel Pty Ltd
MOU Memorandum of Understanding

MP Medium pressure

MPA Maximum potential acid
MPF Major Project Facilitation
MSDSs Material Safety Data Sheets
MSP Mixed sulphide precipitation
MSQ Maritime Safety Queensland

Mt million tonnes

Mt/y million tones per year

Mtpa million tonnes per annum

MW megawatt

MWh megawatt hours

MWQP Marine Water Quality Program

N₂O Nitrous oxide Na Sodium

NAF Non-acid forming
NAG Net acid generation

NAPP Net acid producing potential

NATA National association of testing authorities

NC Act Nature Conservation Act 1992

NDT Non-destructive testing

NEPC National Environmental Protection Council
NEPM National Environmental Protection Measure

NES National Environmental Significance

NGS National Greenhouse Strategy

NHMRC National Health and Medical Research Council

Ni Nickel
NO Nitric oxide
NO₂ Nitrogen dioxide

NOHSC National Occupational Health and Safety Commission

NO_x Oxides of nitrogen

NPI National pollution inventory

NSW EPA New South Wales Environmental Protection Agency

nt near threatened
NT Act Native Title Act 1993

NTU Nephelometric turbidity units
NZS New Zealand standard

O₂ Oxygen

Glossary and Abbreviations

 O_3 Ozone

OD Outside diameter

OHS Occupational health and safety
OLS Obstacle Limitation Surface

OPP Ore preparation plant

OPSIM Operation simulation model

PABX Private Automatic Branch Exchange typically hosting multiple phone

extensions and a main site dial in number.

PAF Potentially acid forming
PAMs Pre-assembled modules
PASS Potential acid sulphate soils

Pathogens An agent that causes infection or disease, especially a micro-organism, such

as a bacterium or protozoan, or a virus

Pb Lead PbS Galena

PCCC Port Curtis-Coral Coast

PCIMP Port Curtis Integrated Monitoring Program

PCs Personal computers

pH measure of acidity (<7) or alkalinity (>7) of a (water) sample.

Phreatic Surface The top of the water table in a soil structure

Piezometric level Measurement of potential groundwater pressure in aquifers

PIFU Planning Information Forecasting Unit

PJ/a PetaJoules per annum
PM Particulate matter (fine dust)

PM_{2.5} and PM₁₀ Particulate matter less than 2.5 or 10 microns

PMF Probable Maximum Flood

PMG Pearce Matheson Group Pty Ltd
PPE Personal Protection Equipment

Prill/pastille sulphur Sulphur powder that has been compacted into a pellet or tablet form

PSSA 'Particularly Sensitive Sea Area'

QAS Queensland Ambulance Service

QFRS Queensland Fire and Rescue Service

QPS Queensland Police Service

QR Queensland rail

QRA quantitative risk assessments

RAMSAR Ramsar sites are wetlands of international importance designated under the

Ramsar Convention

REs Regional Ecosystems
RIFA red imported fire ants

Riparian Pertaining to the riverine zone or area of vegetation associated with a water

course

Riprap Rock or other material used to stabilize shore.



RL Reduced level (relative height compared to Australian Height Datum)

RLMS Resource and Land Management Services

RMA Residue management area and Resource Modelling Associates

ROM Run of mine ROW Right-of-way

rpm Revolution per minute
RSF Residue Storage Facility
S.L.A.M Stop Look Assess Manage
SAG Semi Autogenous Grinding

SAP Sulphuric Acid Plant

SCADA Supervisory Control and Data Acquisition scat Dung left by animals aiding in identification

SDPWO Act State Development and Public Works Organisation Act 1971

Se Selenium

SEP Stanwell Energy Park
SES State Emergency Service
SKM Sinclair Knight Merz
SLA Statistical Local Area

SLOT DTL Specified Level of Toxicity Dangerous Toxic Load

SMS Safety Management System.

SN Solution neutralisation

SO₂ Sulphur dioxide SO₃ Sulphur trioxide

SO₄ Sulphate

SOPs Standard Operating Procedures

SPP State Planning Policy
STEL Short term exposure limit

Supratidal above high water

t tonnes

t/a, tpa, t/y tonnes per annum t/y Tonnes per year

Tailings The unwanted sand, silt, clay and a proportion of the very fine ore fractions

removed in the ore mining and refining process.

TAPM CSIRO's The Air Pollution Model

Taxa Taxonomic units describing organisms in a hierarchical grouping. The level of

taxa commonly referred to in the description of flora and fauna are: Family,

Genus and species

TDS Total dissolved solids

Ti Titanium

Toolbox meeting Meetings of personnel at the beginning of the shift to detail information, issues

and hazards applicable to that days work.

TOR Terms of Reference

TOC Total organic carbon
TOs traditional owners
tph tonnes per hour

Transmissivity The transmissivity of an aquifer is a measure of how much water can be

transmitted horizontally

TSF Tailings storage facility
TSP Total suspended particles
TSS Total suspended solids
TWA Time weighted average

UNFCC COP3 Conference of the Parties to UNFCCC

UNFCCC United Nations Framework Convention on Climate Change

URS URS Australia Pty Ltd

V Vertical when referring to slope angle or Volts when referring to power

VM Act Vegetation Management Act 1999

VOC Volatile organic compounds

Vu Vulnerable

Vug A small cavity in rock, often lined with crystals

WA Western Australia

WAN Wide Area Network, connects office for data communications like internal

email

WHS Act Workplace Health and Safety Act 1995

WHO World Health Organisation
WICT Wiggins Island Coal Terminal

WIW Wiggins Island Wharfs

WONS Weeds of national significance

WQOs water quality objectives WTP Water treatment plant

y year
Zn zinc
ZnS Sphalerite