



# **Millennium Expansion Project**

## **Environmental Impact Statement**

### **GLOSSARY OF TERMS**

## GLOSSARY AND ABBREVIATIONS

Term	Definition
AADT	Annual average daily traffic. The yearly two-way traffic volume divided by 365, expressed as vehicles per day.
ABS	Australian Bureau of Statistics.
ACARP	Australian Coal Association Research Program.
ACC	Area Consultative Committee.
ACH Act	<i>Queensland Aboriginal Cultural Heritage Act 2003.</i>
ACM	Acid consuming material.
ACMER	Australian Centre for Mining Environmental Research.
ADG Code	<i>Australian Dangerous Goods Code 7<sup>th</sup> Edition.</i>
AEP	Annual exceedance probability. The probability that the given event will be exceeded within a one year period.
AGD84	Australian Geodetic Datum 1984.
AHD	Australian Height Datum.
Airblast overpressure	The energy transmitted from the blast site within the atmosphere in the form of pressure waves, consisting of both audible (noise) and inaudible (concussion) energy. The maximum excess pressure in this wave is the peak airblast overpressure.
Air NEPM	<i>National Environmental Protection (Ambient Air Quality) Measure 2003.</i>
ALARP	As low as reasonably practicable.
Ambient noise	The all-encompassing noise associated within a given environment. It is the composite of sounds from many sources, both near and far.
Amenity	Useful and enjoyable quality.
Anabat	A device for detecting bats.
ANC	Acid neutralising capacity.
ANC <sub>BT</sub>	Acid neutralising capacity (back titration).
ANFO	Ammonium Nitrate Fuel Oil.
ANZECC	Australian and New Zealand Environment and Conservation Council.
ANZECC Guidelines	<i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality.</i>
APCT	Abbot Point Coal Terminal.
APP	Acid producing potential.
Aquatic	Growing, living or found in water.
Aquifer	An underground layer of permeable rock, sediment, or soil that yields water.
ARD	Acid rock drainage.
ARI	Average Recurrence Interval. An expression of the average, or expected, period between exceedances of a given rainfall total accumulated over a given duration.
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand.
AS	Australian Standard.
Assessment background level (ABL)	The single-figure background level representing each assessment period—day, evening and night (i.e. three ABLs are determined for each 24 hour period of the monitoring period). ABL is a measure of background noise level in the absence of noise from the source. Determination of the ABL is by the tenth percentile method, i.e. sort the recorded hourly LA90's into ascending order and select the are the lowest ten percentile level
AS/NZS	Australian Standard/New Zealand Standard.
ATSI Act	<i>Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984.</i>
AWS	Automatic weather station.
\$AUD	Australian Dollar.
Baseline	The condition already present in an area before the commencement of a specific activity.
Batter	An upwardly receding slope.
BBKY	Barada Barna Kabalbara Yetimarla People #4.
B Double	A truck and trailer combination consisting of a prime mover coupled to two trailers.
BHPMC	BHP Mitsui Coal Pty Ltd.
BIBO	Bus-in/Bus-out.
BMA	BHP Billiton Mitsubishi Alliance.

BOM	Bureau of Meteorology.
BPA	Biodiversity Planning Assessment.
Bt	Billion tonnes.
CaCO <sub>3</sub>	Calcium carbonate.
CAMBA	China-Australia Migratory Bird Agreement.
Carriageway	The part of the road that carries vehicular traffic.
Catchment	The entire land area from which water (e.g. rainfall) drains to a specific watercourse or water body.
Chainage	The location along a road from a start point (in metres).
CHF	Coal handling facilities.
CHMA	Cultural Heritage Management Agreement.
CHMP	Cultural Heritage Management Plan.
CHPP	Coal Handling and Preparation Plant.
Cleaner Production	Cleaner production refers to the continuous development and implementation of practices and procedures to prevent or minimise waste generation, so as to reduce the risks to public health and safety and the environment.
cm	Centimetre.
CMLR	University of Queensland Centre for Mined Land Rehabilitation.
CMSH Act	Queensland <i>Coal Mining Safety and Health Act 1999</i> .
CO	Carbon monoxide.
CO <sub>2</sub>	Carbon dioxide.
CO <sub>2-e</sub>	Carbon dioxide equivalents. A metric measure used to compare the emissions of various greenhouse gases, relative to carbon dioxide, based on their global warming potential.
CRG	Community Reference Group.
CSG	Coal seam gas.
Cultural Heritage	The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.
Cumulative	Growing in quantity, strength, or effect by successive additions or gradual steps.
°C	Degrees Celsius.
Day	Refers to the period between 6 am and 6 pm
Evening	Refers to the period between 6 pm and 10 pm
Night	Refers to the period between after 10 pm and before 6 pm
dB	Decibel.
dB(A)	A measure of sound level. Decibels using the 'A' weighted scale, measured according to the frequency response of the human ear.
dB (linear) peak	The maximum reading in decibels obtained using the "P" time – weighting characteristic as specified in AS 1259.1 – 1990 with all frequency-weighted networks inoperative.
DBCT	Dalrymple Bay Coal Terminal.
DCC	Commonwealth Department of Climate Change.
DCCEE	Commonwealth Department of Climate Change and Energy Efficiency (previously DCC).
Decommissioning	The process of shutting down a mining operation with the broad objective of leaving the area in a safe and stable condition that is consistent with the surrounding physical and social environment and does not need ongoing maintenance.
DEEDI	Queensland Department of Employment, Economic Development and Innovation.
DERM	Queensland Department of Environment and Resource Management.
DERM Guideline	<i>DERM Guideline: Establishing draft environmental values and water quality objectives.</i>
DEWHA	Commonwealth Department of Environment, Water, Heritage and the Arts. At the time of writing, DEWHA has been replaced by the Commonwealth Department of Sustainability, Environment, Water, Population and Communities.
DFE	Defined flood event.
DHLGP	Queensland Department of Housing, Local Government and Planning.
DIP	Queensland Department of Infrastructure and Planning.
Direct	Immediate; without intervening persons or agencies.
DME	Queensland Department of Mines and Energy.
DMR	Queensland Department of Main Roads.
DNRM	Queensland Department of Natural Resources and Mines.

DPI	Queensland Department of Primary Industries.
DPI&F	Queensland Department of Primary Industries and Fisheries.
Draft SIMP Guideline	<i>Draft Social Impact Assessment: Preparing a social impact management plan.</i>
DRET	Commonwealth Department of Resources, Energy and Tourism.
dS/m	Deci-Siemens per metre.
DTM	Digital Terrain Model.
DTMR	Queensland Department of Transport and Main Roads.
EA	Environmental Authority.
EC	Electrical Conductivity. The ability of a substance to transmit electricity.
EC <sub>12</sub>	Measure of electrical conductivity using a 1:2 soil:water suspension.
Ecologically Sustainable Development	Development that uses, conserves and enhances 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	An interacting system of animals, plants, other organisms and nonliving parts of the environment.
EEO	Commonwealth <i>Energy Efficiency Opportunities Act 2006</i> .
EIA	Environmental Impact Assessment.
EIS	Environmental Impact Statement.
ELAM	Emergency and long-term accommodation.
Emission	The discharge or release of a substance into the environment.
EMM	Environmental Monitoring Manual.
EMOS	Environmental Management Overview Strategy.
EM Plan	Environmental Management Plan.
EMQ	Emergency Management Queensland.
Endangered	Listed as 'endangered' under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> and/or the Queensland <i>Nature Conservation Act 1992</i> .
EPA	Queensland Environmental Protection Agency (renamed to Department of Environment and Resource Management – see DERM - in 2009).
EP Act	Queensland <i>Environmental Protection Act 1994</i> .
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
EPC	Exploration Permit for Coal.
Ephemeral	Existing for a short length of time. Used in reference to a stream that only flows periodically.
EPO	Environmental Protection Order.
EPP	Environmental Protection Policy.
EPP Air	<i>Queensland Environmental Protection (Air) Policy 2008</i> .
EPP Noise	<i>Queensland Environmental Protection (Noise) Policy 2008</i> .
EPP Waste	<i>Queensland Environmental Protection (Waste Management) Policy 2000</i> .
EPP Water	<i>Queensland Environmental Protection (Water) Policy 2009</i> .
EP Regulation	Queensland <i>Environmental Protection Regulation 2008</i> .
ERA	Environmentally Relevant Activity.
ERE	Endangered Regional Ecosystem.
ESA	Equivalent Standard Axles.
ESA	Environmentally Significant Area.
ESD	Ecologically Sustainable Development.
EV	Environmental values.
EVR	'Endangered', 'Vulnerable' or 'Rare'.
EWRE	External Waste Rock Emplacement.
Final void	The residual pit, or void, developed by the process of open cut mining.
Free Field	A position where there are no reflecting surfaces, other than the ground, close enough to influence the sound pressure level. Taken as a minimum of 1.2 metres above ground level and 4m from the closest building façade
FRR	Final Rehabilitation Report.
FTE	Full-time Employment.
FTE	Full-time Equivalent.
GARID	<i>Guidelines for Assessment of Road Impacts of Development</i> .
GBRMPA	Great Barrier Reef Marine Park Authority.

GDA94	Geocentric Datum of Australia 1994.
GDE	Groundwater dependent ecosystem. Ecosystems that use groundwater as part of survival (e.g. wetlands); the groundwater dependence of ecosystems ranges from complete to partial reliance.
GED	General Environmental Duty.
GFC	Global Financial Crisis.
GHG	Greenhouse gas. Any of the atmospheric gases that contribute to the greenhouse effect (e.g. methane, carbon dioxide and non-methane volatile organic compounds).
GIS	Geographic Information System.
GPS	Global Positioning System.
GOAL	Good quality agricultural land.
Groundwater	All waters that collect or flow below the earth's surface.
Groundwater drawdown	Cone-shaped depressions in groundwater levels as a result of pumping groundwater from an aquifer.
GRP	Gross Regional Product.
GSDM	Generalised Short-Duration Method.
GWh	Gigawatt hours
ha	Hectare.
Habitat	The location or environment where an organism or a biological population normally lives or occurs.
Hazard	The intrinsic ability to cause adverse effects.
HAZOP	Hazard and Operability.
HEC-RAS Model	Hydrologic Engineering Center River Analysis System Model.
Highwall	The unexcavated face of exposed overburden and coal in an open cut mine.
HPCT	Hay Point Coal Terminal.
HSMP	Health and Safety Management Plan.
Hz	Hertz.
IAS	Initial Advice Statement.
ICOMOS	International Council on Monuments and Sites.
IEAust	Institution of Engineers Australia.
Income	The amount of money or its equivalent received during a period of time in exchange for labour or services, from the sale of goods or property, or as profit from financial investments.
Indirect	Not coming as a direct effect or consequence: secondary.
In situ	In original place or location.
Interburden	Material that lies between two areas of economic interest, such as the material separating coal seams within strata.
Introduced Species	A species that does not occur naturally in a given area, though has been introduced to it.
I-O Analysis	Input-Output Analysis.
IPA	Queensland <i>Integrated Planning Act 1997</i> (replaced by the <i>Sustainable Planning Act 2009</i> )
IRC	Isaac Regional Council.
IWRE	Internal Waste Rock Emplacement.
JAMBA	Japan-Australia Migratory Bird Agreement.
JORC Code	Australasian Joint Ore Reserves Committee's <i>Australasian Code for Reporting on Exploration Results, Mineral Resources and Ore Reserves</i> .
JSA	Job Safety Analysis.
kg	Kilogram.
kg H <sub>2</sub> SO <sub>4</sub> /t	Kilograms of sulphuric acid per tonne.
kL	Kilolitre.
Km	Kilometre.
km/hr	Kilometres per hour.
km <sup>2</sup>	Square kilometre.
kWh	Kilowatt hour.
L <sub>Aeq,t</sub>	The L <sub>Aeq</sub> is the "A"-weighted energy average noise level over the time in question. It is the constant noise level containing the same energy as the actual fluctuating noise level. Commonly accepted time periods (t) include 10 minutes, 15 minutes, 30 minutes, 60 minutes and 24 hours.
LA1	The LA10 is the "A"-weighted statistical noise level exceeded 1% of the time.

LA <sub>10,t</sub>	The LA <sub>10</sub> is the "A"-weighted statistical noise level exceeded 10% of the time. Commonly accepted time periods (t) include 10 minutes, 15 minutes, 30 minutes, 60 minutes and 24 hours. It is sometimes referred to as the average maximum noise level.
LA <sub>90,t</sub>	The LA <sub>90</sub> is the "A"-weighted statistical noise level exceeded 90% of the time. Commonly accepted time periods (t) include 10 minutes, 15 minutes, 30 minutes, 60 minutes and 24 hours. It is commonly referred to as the background noise level.
LB	Leichardt Lower.
L	Litre.
L/s	Litres per second.
L/tonne	Litres per tonne.
LGA	Local Government Area.
LOX	Limit of oxidation.
LP Act	Queensland <i>Land Protection (Pest and Stock Route Management) Act 2002</i> .
LP Regulation	Queensland <i>Land Protection (Pest and Stock Route Management) Regulation 2003</i> .
LSA	Local Study Area.
LU	Leichardt Upper.
Macroinvertebrate	An animal that lacks a vertebral column, or backbone.
Macrophyte	An aquatic plant that is large enough to be visible to the naked eye, and may be emergent, submergent or floating.
mAHD	Australian Height Datum height in metres.
MCPL	Millennium Coal Pty Limited.
Maximum instantaneous charge (MIC)	The maximum amount of explosive in kg on any one specific delay detonator in any one blast hole
MDBC	Murray Darling Basin Commission.
MDL	Mineral Development Licence.
Median	The middle value, where half the data are smaller, and half the data are larger. If the number of samples is even, the median is the arithmetic average of the two middle values.
MEP	Millennium Expansion Project.
mg/kg	Milligrams per kilogram.
mg/L	Milligrams per litre.
mg/m <sup>2</sup> /day	Milligrams per square metre per day.
MIC	Maximum Instantaneous Charge. The maximum amount of explosive in kg on any one specific delay detonator in any one blast hole.
Mitigation	Actions taken to lessen the severity or intensity of an impact.
ML	Mining Lease.
ML	Megalitre.
MLA	Mining Lease Application.
m	Metre.
m <sup>3</sup>	Cubic metre.
m <sup>3</sup> /s	Cubic metres per second.
mm	Millimetre.
mm/hr	Millimetres per hour.
MNES	Matter of National Environmental Significance.
MPA	Maximum Potential Acidity.
MRA	Commonwealth <i>Mineral Resources Act 1989</i> .
MRC	Mackay Regional Council.
MRRT	Mineral Resource Rental Tax.
MSA	Mackay Study Area.
MSDS	Material Data Safety Sheet.
Mt	Million tonnes.
Mtpa	Million tonnes per annum.
MWMS	Mine water management system.
NAF	Non acid forming.
NAG	Net acid generation.
NAGP	Net acid generation potential.

NAPP	Net acid producing potential.
Native Title	The rights and interests that are possessed under the traditional laws and customs of Aboriginal peoples and Torres Strait Islanders in land and waters, and that are recognised by the common law.
NC Act	Queensland <i>Nature Conservation Act 1992</i> .
NEPC	National Environmental Protection Council.
NEPM	National Environmental Protection Measure.
NGA Workbook	National Greenhouse Accounts (NGA) Factors 2009.
NGER Act	Commonwealth <i>National Greenhouse and Energy Reporting Act 2007</i> .
NHMRC	National Health and Medical Research Council.
NMA	Noise Mapping Australia Pty Ltd.
NNIT	National Native Title Tribunal.
NO <sub>x</sub>	Oxides of nitrogen.
Noise Floor	The noise floor, inherent or 'self-noise' of sound level measuring equipment is the combination of the preamplifier's electrical noise and thermal noise from the microphone
NPI	National Pollutant Inventory.
NPI Emission Manual	<i>National Pollutant Inventory Emission Estimation Technical Manual for Mining Version 2.3</i> .
NSW	New South Wales.
NT Act	Commonwealth <i>Native Title Act 1993</i> .
NTU	Nephelometric Turbidity Units.
NWQMS	<i>National Water Quality Management Strategy</i> .
NYSE-BTU	New York Stock Exchange – Peabody Stock Code.
octas	A rating system describing cloud cover. A clear sky is zero octas while full cloud cover is eight octas
Offset	Environmentally beneficial activities which are carried out in order to counterbalance adverse environmental impacts.
Overburden	Geological strata overlying coal or mineral deposits.
PAF	Potentially acid forming.
PAF-LC	Potentially acid forming – low capacity.
PCI	Pulverised coal injection.
Peabody	Peabody Energy Australia Pty Limited, previously known as Peabody Pacific Pty Limited.
PEAC	Peabody Energy Australia Coal Pty Ltd (this entity is now Peabody Energy Australia Pty Limited).
Peak particle velocity	A measure of ground vibration magnitude and is the maximum instantaneous particle velocity at a point during a given time interval in mms-1. (Peak particle velocity can be taken as the vector sum of the three component particle velocities in mutually perpendicular directions).
pH	Value taken to represent acidity or alkalinity of an aqueous solution.
PHA	Preliminary Hazard Analysis.
PMF	Probable maximum flood.
PMP	Probable maximum precipitation.
PM <sub>10</sub>	Particulate matter less than 10 microns in diameter.
PM <sub>2.5</sub>	Particulate matter less than 2.5 microns in diameter.
PoO	Plan of Operations.
PPE	Personal protective equipment.
Progressive rehabilitation	Rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.
QDMR	Queensland Department of Main Roads.
QFSS	Qualitative Free Soil Survey.
QH Act	<i>Queensland Heritage Act 1992</i> .
QR	Queensland Rail.
QWQG	<i>Queensland Water Quality Guidelines</i> .
RAFTS	A rainfall-runoff modelling program.
RAM	Risk Assessment Matrix.
Rare	Listed as 'rare' under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> and/or the Queensland <i>Nature Conservation Act 1992</i> .

Rating background level (RBL)	The overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period (as opposed to over each 24 hour period used for the ABL). It is the median value of the ABL's
RCMP	Regional Coastal Management Plan.
RE	Regional ecosystem.
Recharge	A hydrologic process where water moves downward from surface water to groundwater.
Recycle	The process of re-using a given product beyond its intended use, or producing a new product from a recyclable material.
REDC	Regional Economic Development Corporation.
REDD	Regional Ecosystem Description Database.
Regulated waste	A commercial or industrial waste, whether or not it has been immobilised or treated, of a type, or containing a constituent of a type, mentioned in Schedule 7 of the EP Regulation. Regulated waste types contain a significant quantity and concentration of a hazardous contaminant that exhibits hazardous characteristics because of its toxicity, carcinogenicity, mutagenicity, teratogenicity, flammability, corrosivity, reactivity, ignitability or infectiousness, through its physical, chemical or biological characteristics.
Rehabilitation	The process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
REMP	Receiving Environment Monitoring Program.
Re-use	The act or process of using again.
Revegetation	To provide barren or denuded land with a new vegetative cover.
Riparian	Relating to the banks of a natural waterway, typically in reference to vegetation.
Risk	The probability of occurrence of adverse effects.
RL	Reduced Level.
RMIJV	Red Mountain Infrastructure Joint Venture.
RMJV	Red Mountain Joint Venture.
RMRL	Red Mountain Rail Loop.
ROM coal	Run-of-mine coal.
RP	Release point.
RPDM	<i>Road Planning and Design Manual.</i>
RPEQ	Registered Professional Engineer of Queensland.
RPP	Regional Planning Policy.
RSA	Regional Study Area.
RSPT	Resource Super Profits Tax (superseded MRRT).
Salinity	The total content of dissolved solids in water, commonly expressed as parts of dissolved solids per million parts of solution, or milligrams of dissolved solids per litre of solution (mg/L); the significance of salinity depends on the nature as well as the amount of the dissolved solids.
SCEP	Stakeholder and Community Engagement Program.
SCMP	State Coastal Management Plan.
SCR	State controlled road.
SDPWO Act	<i>Queensland State Development and Public Works Organisation Act 1971.</i>
SDS	Safety Data Sheet.
Sensitive Receptor	Areas of human habitation (e.g. an individual dwelling, a group of receptors or a population) that may be susceptible or sensitive to impacts (e.g. noise impacts).
SIA	Social Impact Assessment.
SIMP	Social Impact Management Plan.
SMD	Slightly to moderately disturbed system.
SOP	Standard Operating Procedure.
SO <sub>x</sub>	Oxides of sulphur.
SO <sub>2</sub>	Sulphur dioxide.
SO <sub>4</sub> <sup>2-</sup>	Sulphate.
SPA	<i>Queensland Sustainable Planning Act 2009.</i>
SPP	State Planning Policies.
Stakeholder	Person or group of people with a vested interest in the project, and/or its potential impact.
Stockpile	Temporarily stored materials such as soil, sand, gravel and spoil/waste.
STP	Sewage Treatment Plant.



Stratigraphy	The study of rock strata, especially the distribution, deposition, and age of sedimentary rocks.
Stygofauna	Fauna that inhabit groundwater, sometimes occurring very close to the surface.
Surface water	Water collecting on the earth's surface.
SWP	Standard Work Procedure.
TAFE	Technical and Further Education.
TAPM	The Air Pollution Model.
TARS	Traffic Analysis Reporting System.
TDS	Total dissolved solids.
TEC	Threatened Ecological Community.
Terrestrial	Growing or living on the land.
TIA	Transport Impact Assessment.
TI Act	<i>Queensland Transport Infrastructure Act 1994.</i>
TO Act	Transport Operation (Road Use Management) Act 1995
Topsoil	The surface layer of soil.
TOR	Terms of Reference (the Final TOR were approved by DERM on 3 <sup>rd</sup> August 2009).
TPH	Tons per hour
Troglofauna	Subterranean animals that exist only in caves and cavities, adapted to life in permanent darkness.
TSP	Total suspended particulates.
TSS	Total suspended solids.
ULDA	Urban Land Development Area.
USACE	United States Army Corps of Engineers.
Value-added	The difference between the value of a firm's output and the cost of the inputs of raw materials, components or services brought in to produce that output.
Vibration	Mechanical oscillations about an equilibrium point.
VM Act	<i>Queensland Vegetation Management Act 1999</i>
VOC	Volatile Organic Compound.
VU	Upper Vermont Seam.
Vulnerable	Listed as 'vulnerable' under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> and/or the Queensland <i>Nature Conservation Act 1992</i> .
Waste rock emplacement	Placement or containment of waste rock (material encountered during the mining process that has little or no economic value).
Weed	Any plant that requires some form of action to reduce its effect on the economy, the environment, human health and amenity. Weeds are also known as invasive plants.
WONS	Weeds of National Significance.
WQO	Water Quality Objectives.
WRP	Water Resource Plan.
µg/m <sup>3</sup>	Microgram per cubic metre.
µm	Micrometre.
µS/cm	Microsiemens per centimetre.
%S	Percentage total sulphur.