

ATLAS-CAMPASPE

Mineral Sands Project

ENVIRONMENTAL IMPACT STATEMENT



SECTION 9 › ABBREVIATIONS, ACRONYMS AND GLOSSARY

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9 ABBREVIATIONS, ACRONYMS AND GLOSSARY

9.1 ABBREVIATIONS

<i>Acacia melvillei</i> Shrubland EEC	<i>Acacia melvillei</i> Shrubland in the Riverina and Murray-Darling Depression Bioregions Endangered Ecological Community	BMR	Bureau of Mineral Resources, Geology and Geophysics
ADG Code	<i>Australian Code for the Transport of Dangerous Goods by Road and Rail</i>	BSC	Balranald Shire Council
AEMR	Annual Environmental Management Report	CDIRS	Computerised Design IFD Rainfall System
AGSO	Australian Geological Survey Organisation	CDSC	Central Darling Shire Council
AHD	Australian Height Datum	Central Darling LEP	<i>Central Darling Local Environmental Plan 2004</i>
AHIMS	Aboriginal Heritage Information Management System	Cl	chloride
Approved Methods	<i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW</i>	cm	centimetre
AQGHGMP	Air Quality and Greenhouse Gas Management Plan	CMA	Catchment Management Authority
ARC	Australian Research Council	CO ₂ -e	carbon dioxide equivalent
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency	Commonwealth Minister	Commonwealth Minister for Sustainability, Environment, Water, Population and Communities
ARTC	Australian Rail Track Corporation	CPDP	Conceptual Project Development Plan
AS	Australian Standard	Cristal	The National Titanium Dioxide Company Limited
AS/NZS ISO	Australian Standard/New Zealand Standard International Organization for Standardization	Cristal Mining	Cristal Mining Australia Limited
AWS	automatic weather station	CSIRO	Commonwealth Scientific and Industrial Research Organisation
Balranald LEP	<i>Balranald Local Environmental Plan 2010</i>	DA	Development Application
Bemax	Bemax Resources Limited	dBA	A-weighted decibel
BoM	Commonwealth Bureau of Meteorology	DCCEE	Commonwealth Department of Climate Change and Energy Efficiency
Bq/g	becquerels per gram	DEC	NSW Department of Environment and Conservation (now OEH)
		DECC	NSW Department of Environment and Climate Change (now OEH)
		DECCW	NSW Department of Environment, Climate Change and Water (now OEH and NOW)
		DEWHA	Commonwealth Department of Environment, Water, Heritage and the Arts (now SEWPaC)

DEWR	Department of Environment and Water Resources (now NOW)	EP&A Regulation	NSW <i>Environmental Planning and Assessment Regulation, 2000</i>
DGRs	Director-General's Requirements	EPA	NSW Environment Protection Authority
DITR	Commonwealth Department of Industry, Tourism and Resources	EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act, 1999</i>
DLWC	NSW Department of Land and Water Conservation (now NOW)		
DMU	dry mining unit	EPBC Regulations	Commonwealth <i>Environment Protection and Biodiversity Conservation Regulations, 2000</i>
DoP	NSW Department of Planning (now DP&I)	EPL	Environment Protection Licence
DP	deposited plan	EPRGO	Environmental Protection and Regulation Group Office
DP&I	NSW Department of Planning and Infrastructure	ERA	Environmental Risk Assessment
DPI	NSW Department of Primary Industries	ESD	ecologically sustainable development
DPI-CLD	NSW Department of Primary Industries' Crown Lands Division	<i>et al.</i>	and others
DPI-MR	NSW Department of Primary Industries – Mineral Resources (now DRE)	ETL	electricity transmission line
DRE	NSW Division of Resources and Energy (within the DTIRIS)	FM Act	NSW <i>Fisheries Management Act, 1994</i>
DSC	NSW Dams Safety Committee	g/m ² /month	grams per square metre per month
DTIRIS	NSW Department of Trade and Investment, Regional Infrastructure and Services	GHG Protocol	Greenhouse Gas Protocol
		ha	hectare
		HB	Handbook
DUAP	NSW Department of Urban Affairs and Planning (now DP&I)	HMC	heavy mineral concentrate
EC	Electrical Conductivity	ICOMOS	International Council on Monuments and Sites
EEO	Energy Efficiency Opportunities	i.e.	that is
EEO Act	Commonwealth <i>Energy Efficiency Opportunities Act, 2006</i>	IFD	intensity-frequency-duration
e.g.	for example	IGANRIP	Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects
EIS	Environmental Impact Statement		
EL	Exploration Licence	INP	NSW <i>Industrial Noise Policy</i>
EP&A Act	NSW <i>Environmental Planning and Assessment Act, 1979</i>	km	kilometre

km ²	square kilometre	Mtpa	million tonne per annum
kt	kilotonne	Na	sodium
ktpa	kilotonne per annum	NEPM	National Environmental Protection Measure
kV	kilovolt	NGA Factors	<i>National Greenhouse Accounts Factors July 2011</i>
kVA	kilovolt-ampere	NGER Act	<i>Commonwealth National Greenhouse and Energy Reporting Act, 2007</i>
L	litre	NGERS	National Greenhouse and Energy Report System
L/s	litre per second	NMP	Noise Management Plan
L _{Aeq}	equivalent continuous noise level	NOW	NSW Office of Water
LALC	Local Aboriginal Land Council	NPI	National Pollutant Inventory
L _{AN}	noise exceedance level	NPWS	NSW National Parks and Wildlife Service (within OEH)
LFA	Landform Function Analysis	NSESD	<i>National Strategy for Ecologically Sustainable Development</i>
LGA	Local Government Area	NSW	New South Wales
LPG	liquefied petroleum gas	NTSCORP	Native Title Services Corporation
m	metre	Ltd	Limited
M	million	OEH	NSW Office of Environment and Heritage
m ³	cubic metre	OEH Offset Principles	<i>Principles for the Use of Biodiversity Offsets in NSW</i>
Mbcm	million bank cubic metre	PA	Project Approval
mg/L	milligram per litre	PEA	Preliminary Environmental Assessment
ML	megalitre	PHA	Preliminary Hazard Analysis
ML/annum	megalitre per annum	PM ₁₀	particulate matter less than 10 micrometres in size
MLA	Mining Lease Application	PM _{2.5}	particulate matter less than 2.5 micrometres in size
mm	millimetre	PoEO Act	<i>NSW Protection of the Environment Operations Act, 1997</i>
MOP	Mining Operations Plan		
MORT	Monazite Return Tailings		
MP	Member of Parliament		
MREMP	Mining, Rehabilitation and Environmental Management Process		
MSDS	Material Safety Data Sheet		
Mt	million tonne		

RBL	rating background level	the Guidelines	<i>Interim Mining Operations Plan Guidelines – Guidance Note 1</i>
REMP	Rehabilitation and Environmental Management Plan	the Minister	NSW Minister for Planning and Infrastructure
RMS	NSW Roads and Maritime Services	the MSP	Broken Hill Mineral Separation Plant
RNP	<i>NSW Road Noise Policy</i>	the Project	Atlas-Campaspe Mineral Sands Project
RO	reverse osmosis		
ROM	run-of-mine	TSC Act	NSW <i>Threatened Species Conservation Act, 1995</i>
RTA	NSW Roads and Traffic Authority (now RMS)	TSP	total suspended particulate
Sandhill Pine Woodland EEC	<i>Sandhill Pine Woodland in the Riverina and Murray-Darling Depression and NSW Western Slopes Bioregions Endangered Ecological Community</i>	WAL	Water Access Licence
		WBCSD	World Business Council for Sustainable Development
SEPP	State Environmental Planning Policy	WHIMS	wet high intensity magnetic separation
SEPP 33	<i>State Environmental Planning Policy No. 33 (Hazardous and Offensive Development)</i>	WRI	World Resources Institute
SEPP 44	<i>State Environmental Planning Policy No. 44 (Koala Habitat Protection)</i>	WLL	Western Land Lease
SEPP 55	<i>State Environmental Planning Policy No. 55 (Remediation of Land)</i>	µm	micrometre
		µg/m ³	microgram per cubic metre
		%	percent
		°C	degrees Celsius
SEWPaC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities	9.2 ACRONYMS AND GLOSSARY	
State and Regional Development SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>	Alluvial	A general term for clay, silt, sand and gravel transported by water and deposited on the bed of a floodplain, river or stream.
SSD	statistical subdivision	Ambient air quality	The all-encompassing air quality associated with a given environment. It is the cumulative result of emissions (e.g. dust, particulates) from many sources, both near and far.
t	tonne		
TAPM	The Air Pollution Model		
tpa	tonne per annum		
tph	tonne per hour	Amenity	Useful and enjoyable quality.
TDS	total dissolved solids		

Aquatic	Living in or on water, or concerning water.	dB	Decibel; unit used to express sound intensity.
Aquifer	A sub-surface rock formation containing water in recoverable quantities.	dBA	Decibels (A-weighted scale); unit used for most measurements of environmental noise; the scale is based upon typical responses of the human ear to sounds of different frequencies.
Background	The condition (e.g. noise levels) already present in an area before the commencement of a specific activity.	dB	Decibels (A-weighted scale); unit used for most measurements of environmental noise; the scale is based upon typical responses of the human ear to sounds of different frequencies.
Batter	An engineered slope of soil or rock fill on either side upslope or downslope of a road, embankment or overburden emplacement; the sloping banks of cut earth separating different levels in an active mining area.	Decommissioning	Removal or reuse of infrastructure.
Blended Process Wastes	A combination of sand residues, coarse rejects and MSP process waste that is deposited in process waste emplacement cells behind the advancing ore extract area.	Drawdown	The localised lowering of groundwater level.
Bund	An earth, rock or concrete wall or mound constructed to restrict the inflow or outflow of liquids.	Ecologically sustainable development (ESD)	Development that improves the quality of life, in a way that maintains the ecological processes on which life depends.
Catchment	The entire land area from which water (e.g. rainfall) drains to a specific watercourse or waterbody.	Ecosystem	An interacting system of animals, plants, other organisms and non-living parts of the environment.
Coarse Rejects	Waste materials (greater than 3 mm) which occur in mineral sands ore that are removed at the primary gravity concentration unit.	Electrical Conductivity (EC)	The ability of a substance (either solid, liquid or gas) to transmit electricity.
Cross-section	A two-dimensional diagram of an object presented as if the object had been cut across its length.	Emission	The discharge of a substance (e.g. dust) into the environment.

Final void	A completed (mined-out) ore extraction area (i.e. not backfilled).	L_{Aeq}	The equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.
Greenhouse gases	Gases with potential to cause climate change (e.g. methane, carbon dioxide and non-methane volatile organic compounds). Usually expressed in terms of carbon dioxide equivalent.	Leucoxene	A titaniferous mineral derived from mineral sands, typically containing 65% to 91% of TiO_2 .
Groundwater	All waters occurring below the land surface; the upper surface of the soils saturated by groundwater in any particular area is called the watertable.	Mitigation	Measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.
Habitat	The particular local environment occupied by an organism.	Monazite	A radioactive material generally present in mineral sands deposits which contains cerium, lanthanum, neodymium and the radioactive element thorium.
Hardstand areas	Flat or gently sloping surface that has been engineered such that it is suitable for trafficking by vehicles and/or location of infrastructure.	MSP Process Waste	A by-product (containing monazite) from processing of mineral concentrates at the MSP.
Heavy Mineral Concentrate	Mineral sands concentrate from the primary gravity separation unit.	Permeability	The ability of a rock or soil to allow fluid to pass through it.
Ilmenite	A titaniferous mineral derived from mineral sands, typically containing 35% to 64% TiO_2 .	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, and 14 is most basic (alkaline).
<i>in-situ</i>	A term used to distinguish material (e.g. soils, minerals, fossils, etc.) found in its original position of formation, deposition, or growth, as opposed to transported material.	Population	A group of individuals of one species in an area.
L_{A10}	The noise exceeded by 10% of the measurement period. Commonly referred to as the average maximum.		

Rating Background Level (RBL)	The overall single-figure sound background level representing each assessment period (day/evening/night) over the whole monitoring period, and is the level used for assessment purposes.	Sand residues	Waste materials which occur in mineral sands ore that are removed from mineral concentrates during primary separation in the primary gravity concentration unit.
Recharge	The addition of water to an aquifer, directly from the surface, indirectly from the unsaturated zone, or by discharge from overlying or underlying aquifer systems.	Seepage	Liquid or fluid such as water, seeping or flowing from beneath the ground to the surface.
Rehabilitation	The restoration of a landscape and especially the vegetation following its disturbance.	Stakeholder	Any individual, group or organisation that can affect, be affected by, or perceive itself to be affected by the behaviour of a company or an organisation.
Remnant Vegetation	Native vegetation remaining after widespread clearing has taken place.	Subsoil	Soils that underlie the top layer of soil, typically having lower levels of organic matter and associated micro-organisms than in topsoil.
Riparian	Pertaining to, or situated on, the bank of a body of water, especially a watercourse such as a river.	Terrestrial	Living or growing on the land.
Runoff	A portion of precipitation (i.e. rain, hail and snow) that flows across the ground surface as water.	Topsoil	The upper or top layer of soil, that typical has higher levels of organic matter and associated micro-organisms.
Rutile	A titaniferous mineral derived from mineral sands, typically containing 92% or more of TiO ₂ .	Total suspended particulate (TSP)	The mass of all particulate matter suspended in a solution (e.g. the air).
Salinity	The total content of dissolved solids in groundwater or surface water, commonly expressed as parts of dissolved solids per million parts of solution, or milligrams of dissolved solids per litre of solution (mg/L).	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.
		Zircon	A mineral containing silica and zirconia derived from mineral sands.