

SECTION 8

ABBREVIATIONS, ACRONYMS AND GLOSSARY

COWAL GOLD MINE E42 MODIFICATION



Environmental Assessment



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AUGUST 2008

Project No. HAL-06-26

Document No. SECTION 8-H (00232027.doc)

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8	ABBREVIATIONS, ACRONYMS AND GLOSSARY	Coffy Partners International	Coffey Partners International Pty Ltd
8.1	ABBREVIATIONS AND ACRONYMS	CWHC	Cowal West Homestead Complex
AEMR	Annual Environmental Management Report	CWMP	Compensatory Wetland Management Plan
AGO	Australian Greenhouse Office	dBA	A-weighted decibel
AHD	Australian Height Datum	dBL	linear decibel
ANC	acid neutralising capacity	DCC	Department of Climate Change
ANZECC	Australian and New Zealand Environmental and Conservation Council	DEC	Department of Environment and Conservation
ARI	annual recurrence interval	DECC	Department of Environment and Climate Change
AS	Australian Standard	DEWHA	Department of the Environment, Water, Heritage and the Arts
Barrick	Barrick Australia Limited	DGRs	Director-General's Requirements
BDHS	Bland District Historical Society	DLWC	Department of Land and Water Conservation
Bland LEP	<i>Bland Local Environmental Plan, 1993</i>	DMP	Dust Management Plan
BLMP	Blast Management Plan	DoL	Department of Lands
BMP	Bushfire Management Plan	DoP	Department of Planning
BOM	Bureau of Meteorology	DPI-MR	Department of Primary Industries – Mineral Resources
BSC	Bland Shire Council	Draft Route Selection Guidelines	<i>Draft Route Selection: Guidelines for Land Use and Environmental Safety Planning for Hazardous Materials – Road Transport Considerations</i>
CaO	calcium oxide	DUAP	Department of Urban Affairs and Planning
CEMCC	Community Environmental Monitoring Consultative Committee	DWE	Department of Water and Energy
CGM	Cowal Gold Mine	E42	Endeavour 42
cm	centimetre	EA	Environmental Assessment
CMP	Cyanide Management Plan	ECRTN	<i>NSW Environmental Criteria for Road Traffic Noise</i>
CN _{FREE}	free cyanide	EDAW	EDAW Australia
CN _{WAD}	weak acid dissociable cyanide	EEC	Endangered Ecological Community
CO _{2-e} pa	carbon dioxide equivalent per annum		
Coffey Geotechnics	Coffey Geotechnics Pty Ltd		

EGi	Environmental Geochemistry International Pty Ltd	HAZOP	Hazard and Operability Study
EIS	<i>Cowal Gold Project Environmental Impact Statement</i> (North Limited, 1998)	HCl	hydrochloric acid
EL	Exploration Licence	HIPAP	Hazardous Industry Planning Advisory Paper
EP&A Act	<i>Environmental Planning and Assessment Act, 1979</i>	HMP	Heritage Management Plan
EP&A Regulation	<i>Environmental Planning and Assessment Regulation, 2000</i>	hPa	hectopascal
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act, 1999</i>	HWCMP	Hazardous Waste and Chemical Management Plan
EPL	Environment Protection Licence	IACHMP	Indigenous Archaeology and Cultural Heritage Management Plan
ERP	Emergency Response Plan	IBRA	Interim Biogeographic Regionalisation for Australia
ESAP	Energy Savings Action Plan	ICDS	Internal Catchment Drainage System
ESCMP	Erosion and Sediment Control Management Plan	IMP	Independent Monitoring Panel
ESD	Ecologically Sustainable Development	INP	<i>NSW Industrial Noise Policy</i>
ETL	Electricity Transmission Line	kg	kilogram
FFMP	Flora and Fauna Management Plan	kg/bcm	kilograms per bank cubic metre
FHA	Final Hazard Analysis	km	kilometre
FM Act	<i>Fisheries Management Act, 1994</i>	km ²	square kilometre
FSC	Forbes Shire Council	km/h	kilometres per hour
FSS	Fire Safety Study	kV	kilovolt
g	gram	Lachlan River Catchment EEC	Aquatic Ecological Community in the Natural Drainage System of the Lowland Catchment of the Lachlan River Endangered Ecological Community
g/m ² /month	grams per square metre per month	L _{Aeq}	equivalent continuous noise level
GWC	Groundwater Consulting Services	L _{AN}	noise exceedance level
h	horizontal	LCCC	Lake Cowal Conservation Centre
H ₂ O ₂	hydrogen peroxide	LCF	Lake Cowal Foundation
H ₂ SO ₄	sulphuric acid	LGA	local government area
ha	hectare	LMP	Land Management Plan

LPBMP	<i>Monitoring Programme for Detection of any Movement of Lake Protection Bund, Water Storage and Tailings Structures and Pit/Void Walls</i>	NaCO ₃	soda ash
		NAF	non-acid forming
		NaOH	caustic soda
LPG	liquid petroleum gas	NEPM	National Environment Protection Measure
LSC	Lachlan Shire Council		
LSMP	Landscape Management Plan	NGA Factors	<i>National Greenhouse Accounts Factors</i>
m	metre	NH ₂ SO ₃ H	sulfamic acid
M	million	NHMRC	National Health and Medical Research Council
m ²	square metre		
m/day	metres per day	NMP	Noise Management Plan
m/s	metres per second	NPW Act	<i>National Parks and Wildlife Act, 1974</i>
Major Projects SEPP	<i>State Environmental Planning Policy (Major Projects) 2005</i>	NSESD	<i>National Strategy for Ecologically Sustainable Development, 1992</i>
mg/L	milligrams per litre	NSW	New South Wales
MIC	maximum instantaneous charge	PAX	Potassium Amyl Xanthate
Mining SEPP	<i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i>	PHA	Preliminary Hazard Analysis
ML	Mining Lease	pH _w	pH 1 soil: 5 water
ML	megalitre	PM ₁₀	particulate matter less than 10 microns in size
ML/day	megalitre per day	PVS	Peak Vector Sum
mm	millimetre	RBL	rating background level
mm/s	millimetres per second	REF	Review of Environmental Factors
MOP	Mining Operations Plan	RL	relative level
Moz	million ounces	ROM	run-of-mine
MREMP	<i>Guidelines to the Mining, Rehabilitation and Environmental Process</i>	RTA	Roads and Traffic Authority
		SEPP	State Environmental Planning Policy
Mt	million tonnes	SEPP 14	<i>State Environmental Planning Policy No.14 (Coastal Wetlands)</i>
Mtpa	million tonnes per annum	SEPP 26	<i>State Environmental Planning Policy No.26 (Littoral Rainforests)</i>
N ₂ B ₄ O ₇	borax	SEPP 33	<i>State Environmental Planning Policy No.33 (Hazardous and Offensive Development)</i>
NaCN	sodium cyanide		

SEPP 55	<i>State Environmental Planning Policy No.55 (Remediation of Land)</i>	$\mu\text{g}/\text{m}^3$	micrograms per cubic metre
		$\mu\text{S}/\text{cm}$	micro Siemens per centimetre
SiO_2	silica flour	°	degrees
SIS	Species Impact Statement	°C	degrees Celsius
SLA	Statistical Local Area		
SMBS	sodium metabisulphite		
SO_2	sulphur dioxide		
SSD	Statistical Sub-division		
SSMP	Soil Stripping Management Plan		
SWGMBMP	Surface Water, Groundwater, Meteorological and Biological Monitoring Programme		
SWMP	Site Water Management Plan		
t/m^3	tonnes per cubic metre		
TDS	total dissolved solids		
THMS	Transport of Hazardous Materials Study		
TNMP	Traffic Noise Management Plan		
tph	tonnes per hour		
TSC Act	<i>Threatened Species Conservation Act, 1995</i>		
TSMP	Threatened Species Management Protocol		
TSP	total suspended particulates		
UCDS	Up-catchment Diversion System		
USDA-FS	United States Department of Agriculture – Forestry Service		
v	vertical		
VCP	Vegetation Clearance Protocol		
vph	vehicles per hour		
W/m^2	watts per square metre		
Waste Guidelines	<i>Waste Classification Guidelines Part 1: Classifying Waste</i>		
μm	micrometre		

8.2 GLOSSARY

Alluvial

A general term for clay, silt, sand and gravel transported by water and deposited, on the bed of a flood plain, river or stream.

Adsorption

The adhesion of a molecule or particle to a surface.

Amenity

Useful and enjoyable quality.

Aquatic

Living in or on water, or concerning water.

Aquifer

A sub-surface rock formation containing water in recoverable quantities.

Average recurrence interval (ARI)

The expected value or average value of the periods between exceedances of a given event magnitude. A term used in water engineering. Also known as "return period".

Backfilling

The refilling of mined areas.

Background

The condition (e.g. noise levels, bird populations) already present in an area before the commencement of a specific activity (e.g. a mining operation).

Barren slurry (tailings)

Liquid, ground, ore following removal of precious metal.

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).	CN _{WAD}	Weak acid dissociable cyanide; cyanide existing in complexes, generally with metal ions, which break up (dissociate) in the presence of weak acid; includes free cyanide.
Batter	An engineered slope of soil or rock fill on either side upslope or downslope of a road, embankment or mine waste storage; the sloping banks of cut earth separating different levels in an open-cut pit.	Concentration	The amount of a substance per unit of mass or volume of the medium in which it occurs.
Berm	A low bank or steep slope built onto a slope to improve its structural stability and reduce erosion.	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.
Biological diversity	The diversity of different species of plants, animals and micro-organisms, including the genes they contain, in the ecosystem of which they are part.	Copper sulphate	Cupric sulfate, CuSO ₄ . 5H ₂ O.
Bund	An earth, rock or concrete wall or mound constructed to restrict the inflow or outflow of liquids or noise.	Cross-section	A two-dimensional diagram of an object presented as if the object had been cut along its length.
Capillary break layer	A layer of material placed specifically on a surface to intercept the upwards migration of moisture.	Crusher	That part of an ore-processing plant where the ore is mechanically crushed into smaller pieces.
Carbon-in-leach process	Process of gold extraction where gold is leached from ore and adsorbed onto carbon in the same tanks.	Cut-off trench	Trench placed underneath and parallel to an embankment or dam wall and filled with material of low permeability (e.g. compacted clay) to prevent seepage underneath the embankment or wall.
Catchment	The entire land area from which water (e.g. rainfall) drains to a specific watercourse or waterbody.	Cyanate	A chemical species (CNO ⁻) formed by the oxidation of cyanide.
Chalcopyrite	Copper-iron sulphide, CuFeS ₂ .	Cyanide	A chemical (CN ⁻) capable of dissolving gold and used in the extraction of gold from ore.
CN _{FREE}	Free cyanide, generally includes the cyanide ion (CN ⁻) and hydrogen cyanide (HCN).	Cyanide leaching circuit	Circuit where gold is removed from ore by dissolution in cyanide solution.
		dB	Decibel; unit used to express sound intensity.

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.	Embankment lifts	An embankment is constructed by the placement of a series of progressively higher and narrower earth or rock layers; each separate layer is called a lift.
Decant pond	A central pond, formed in a tailings storage by runoff of tailings supernatant liquor, from which water is pumped (decanted) from the pond and fed back to the processing plant as process water.	Emission	A discharge of a substance (e.g. dust) into the environment.
Decant water	Water available to be decanted (by gravity, or pumped from a tailings pond).	Endemic	Native plant or animal restricted to a specific locality or geographic region.
Decommissioning	Removal or reuse of infrastructure.	Fault	Major fracture of the earth's crust caused by the relative movement of the rock masses on either side.
Drawdown	The localised lowering of groundwater level as a result of water extraction.	Final void	A completed (mined-out) mine pit.
Ecologically sustainable development (ESD)	Development that improves the quality of life, in a way that maintains the ecological processes on which life depends.	Flotation	The separation of a mixture (e.g. sulphide minerals and waste material) in water, often by the addition of chemicals that carry one component (e.g. sulphides) to the surface as a froth.
Ecosystem	An interacting system of animals, plants, other organisms and non-living parts of the environment.	Flotation circuit	Circuit where material (e.g. sulphide minerals) are concentrated by removal of impurities (e.g. silicate minerals) during flotation.
Edaphic	Pertaining to ecological formations or effects resulting from or influenced by local conditions of the soil or substrate; also an old term applied to any soil characteristic that affects plant growth.	Freeboard	Excess water storage capacity (usually designed to contain rainwaters).
Electrical conductivity	The ability of a substance (either solid, liquid or gas) to transmit electricity.	Gilgai	Irregular land surface with alternating mounds and depressions. Microrelief is formed due to clay horizons shrinking and swelling with alternate drying and wetting cycles.
Electrowinning	The recovery of gold dissolved in cyanide solution by passing an electric current through the solution (electrolysis) to cause gold deposition on steel-wool cathodes.	Grade	The concentration of gold either in an individual rock sample or averaged over a specified volume of rock; gold grade is usually given in grams per tonne.

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 global warming potential carbon dioxide equivalent.	Intra-generational equity	The concept that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of their own generation.
Groundwater	All waters occurring below the land surface; the upper surface of the soils saturated by groundwater in any particular area is called the water table.	LA ₁₀	The noise exceeded by 10% of the measurement period. Commonly referred to as the average maximum.
Habitat	The particular local environment occupied by an organism.	Lacustrine	Pertaining to lakes.
Hydraulic gradient	The change in static head (ie. elevation and pressure) per unit of distance in a given direction. (Units: dimension less)	L _{Aeq}	The equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.
<i>ibid.</i>	In the same place.	Land capability	A method of landuse assessment used to estimate the ability of the land to support a particular landuse. Classification is based on an assessment of the land's biophysical characteristics.
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.	Leach	Dissolution and removal of a soluble substance from a soil or a rock, e.g. the leaching of salt (by water) from a soil or the leaching of gold (by cyanide) from a rock.
Infrastructure	The supporting installations and services that supply the needs of the Project.	Mine waste	By-products of mining operations with no economic value.
<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.	Mine water	All water used in mining and processing (for dust suppression, in leach tanks, etc.).
Inter-generational equity	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.	Noise contours	Theoretical lines connecting points of equal noise value.
		Noxious weeds	Plants that are considered or declared a pest in a Shire or region.
		Ore	Rock containing commercially viable quantities of metals (e.g. gold).

Orebody	A solid mass of ore (both high and low grade) that is geologically distinct from the rock that surrounds it and that is commercially extractable.	Primary ore	The compound of the ore which is composed of unweathered rock.
Overburden	Material that overlies a deposit of ore.	Process plant	The place where the extraction of the gold from the mined ore occurs.
Oxidation	The process by which an element or compound undergoes a chemical reaction involving the removal of electrons; often involves reaction with oxygen to form an oxide (e.g. the rusting of iron).	Process reagents	The chemicals and solutions used in the process method.
Oxide ore	That component of the ore reserve composed of weathered (oxidised) rock.	Pyrite	A common, yellow, sulphide, mineral, FeS ₂ .
Palaeochannel	An ancient stream channel that is now buried.	Quartz	The most abundant and common mineral, consisting of crystalline silica (silicon dioxide, SiO ₂), crystallizing in the trigonal system.
Permeability	The ability of a rock or soil to allow fluid to pass through it.	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.
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).	Reagents	Chemicals used as part of an industrial process.
Phytotoxic	Poisonous to plants.	Receptor	A designated place at which an impact may occur (e.g. a dwelling).
Pit water	Water inflow into the open pit from incident rainfall or groundwater seepage from open pit walls.	Reclaim dam	A dam containing water reclaimed from the tailings storage prior to its recirculation back to the process plant.
Population	A group of individuals of one species In an area.	Recoverable gold	Amount of gold that can be extracted from the ore by normal processing methods.
Pre-stripping	The removal of waste or overburden, before mining, to expose an orebody.	Rehabilitation	The restoration of a landscape and especially the vegetation following its disturbance.
Primary crusher	The machine that crushes the excavated ore feed.	Relative humidity	The ratio of actual moisture in the air to the amount the air could hold if saturated, at a given temperature.

Remnant vegetation	Native vegetation remaining after widespread clearing has taken place.	Sub-aerial	Method of tailings deposition used at the CGM involving progressive peripheral discharge of tailings slurry around the storage (typically via a spigotted ring main) with thin-layer beaching resulting.
Riparian	Pertaining to, or situated on, the bank of a body of water, especially a watercourse such as a river.	Substrate	An underlying layer (e.g. of sediment under water).
ROM	Run-of-mine; see run-of-mine ore stockpile.	Supernatant	The layer of water above settled solids.
Run-of-mine (ROM) ore stockpile	The stockpile of freshly mined ore used to feed the mill and process plant.	Tailings	Finely ground residue from processing and extraction of product from ore.
Runoff	That portion of precipitation (rain, hail and snow) that flows across the ground surface as water.	Temperature inversion	An atmospheric phenomenon in which air temperature increases with height over a particular interval.
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); the significance of salinity depends on the nature as well as the amount of the dissolved solids.	Terrestrial	Living or growing on the land.
Seepage	Liquid or fluid such as water, seeping or flowing from beneath the ground to the surface.	Total suspended particulate matter (TSP)	The mass of all particulate matter suspended in a solution.
Sphalerite	Zinc-containing ore, ZnS (zinc sulphide).	Total suspended solids	A common measure used to determine suspended solids concentrations in a waterbody and expressed in terms of mass per unit of volume (e.g. milligrams per litre).
Spigotted ring main	The tailings slurry pipe with spigot offtakes around a tailings storage facility.	Underdrainage	Artificial drainage that removes infiltration or seepage water from underneath a structure (e.g. a tailings storage or a stockpile).
Stream gauging	Determination of water level and velocity in a stream or river for the purpose of calculating the volume of flow.	WAD	Weak acid dissociable.
		Waste rock	Uneconomic rock extracted from the ground during mining operation to gain access to the ore.