ENVIRONMENTAL PROTECTION ACT 1994

Queensland Government
Environmental Protection Agency
Queensland **Parks and Wildlife Service**

EMD2004/7380

Environmental Authority No. MIM 800086202 (mining activities)

Section 292 *Environmental Protection Act 1994*

This environmental authority is granted under the Environmental Protection Act 1994 *and includes conditions to minimise environmental harm caused, or likely to be caused, by the authorised mining activities. An environmental authority (mining activities) may be for mining activities authorised (under the* Mineral Resources Act 1989*) to occur under one of the following mining tenements: a prospecting permit; mining claim; exploration permit; mineral development licence; or mining lease. In general, a mining activity means: prospecting, exploring, mining; or processing minerals; remediation; rehabilitation; and includes facilitation and supporting activities and any action taken to prevent environmental harm.*

Under the provisions of the *Environmental Protection Act 1994* this environmental authority is issued to:

IDEMITSU QUEENSLAND PTYLTD
BLIGH COAL LIMITED
EPDC (AUSTRALIA) PTY LTD
LG INTERNATIONAL (AUSTRALIA) PTY LTD

C/ - Ensham Resources Pty Ltd
Level 20, AMP Place
10 eagle St
GPO Box 814
Brisbane QLD 4001

in respect of carrying out activities as part of the following mining project:

Type of environmental authority (mining activities)	Authorised mining tenements	Location
Mining Lease	ML 7459 ML 7460 ML 70049 ML 70326 SA 2 (lot 31 P864573)	Ensham Coal Mine 40km East of Emerald

The mining activities are authorized to the extent defined in Schedule 6 of the *Environmental Protection Regulation Act 1994*.

This environmental authority is subject to the conditions set out in the attached schedules.
The anniversary date of this environmental authority is 30 May
This environmental authority takes effect from. 13 October 2004

Signed

13/10/04
Date

Melissa Wells
District Manager
Central West District, Central Region
Delegate of Administering Authority
Environmental Protection Act 1994

This **environmental authority** incorporates the following schedules:

- Schedule A - General
- Schedule B - Air
- Schedule C - Water
- Schedule D - Noise and Vibration
- Schedule E - Waste
- Schedule F - Land
- Schedule G - Community
- Appendix 1 - Definitions
- Appendix 1 - Maps / Plans

Schedule A - General

Financial assurance

(A1-1) Provide a financial assurance in the amount and form required by the administering authority prior to the commencement of activities proposed under this environmental authority.

(A1-2) The financial assurance is to remain in force until the administering authority is satisfied that no claim on the assurance is likely.

Maintenance of measures, plant and equipment

(A2-1) The environmental authority holder must ensure:

- that all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority are installed; and
- that such measures, plant and equipment are maintained in a proper condition; and
- that such measures, plant and equipment are operated in a proper manner.

Monitoring

(A3-1) Record, compile and keep for a minimum of five years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.

(A3-2) Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) conducts all monitoring.

Storage and handling of flammable and combustible liquids

(A4-1) Spillage of all flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm (other than trivial harm) and maintained in accordance with Section 5.9 of AS 1940 - Storage and Handling of Flammable and Combustible Liquids of 1993.

Definitions

(A5-1) Words and phrases used throughout this EA are defined in Attachment 1 – Definitions. Where a definition for a term used in this EA is sought and the term is not defined within this EA, the definitions in the Environmental Protection Act 1994, its Regulations and Environmental Protection Policies must be used.

END OF CONDITIONS FOR SCHEDULE A

Schedule B - Air

Dust nuisance

(B1-1) All reasonable and practicable measures must be taken to minimise the release of dust or particulate matter or both resulting from the mining activities that causes or is likely to cause an environmental nuisance, at any sensitive place.

(B1-2) When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive place, and the results must be notified within 14 days to the administering authority following completion of monitoring.

(B1-3) If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of (B1-1):

a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991 or another method of monitoring/assessment as determined to be appropriate due to the nature of the nuisance decided in consultation with the administering authority; and

b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometer (PM10) suspended in the atmosphere of 150 micrograms per cubic meter over a 24 hour averaging time, at a sensitive place downwind of the operation land, when monitored in accordance with:

- Particulate matter- determination of suspended particulate PM10 high volume sampler with size selective inlet – Gravimetric method, when monitored in accordance with AS 3580.9.6 Methods for sampling and analysis of ambient air – determination of suspended particulate matter – PM (sub) 10 high volume sampler with size-selective inlet – Gravimetric method of 1990; or
- Any alternative method of sampling PM10 which may be permitted by the 'Air Quality Sampling Manual' as published from time to time by the administering authority.

END OF CONDITIONS FOR SCHEDULE B

Schedule C - Water

Release to waters

(C1-1) Receiving waters affected by the release of process water or storm water contaminated by the mining activities or both must be monitored at the locations and frequencies defined in Schedule C - Table 1

Schedule C - Table 1 (Water monitoring locations and frequency)

Monitoring point	*Latitude (GDA 94)*	*Longitude (GDA 94)*	*Sampling Point*	*Monitoring frequency*
Release point	Any location within the mixing zones defined in condition C1-3 and C1-4		Release point at outlet	Daily during water release
Within mixing zone upstream of release point	As per C1-3 & C1-4		Mixing zone 1	Daily during water release
Within mixing zone downstream of release point	As per C1-3 & C1-4		Mixing zone 2	Daily during water release
Downstream Lease Boundary (Nogoa River)	654470	7400670	Compliance point 1	Daily before, during & after water release
Upstream Lease Boundary (Nogoa River)	Dept NRM&E station		Compliance point 2	Daily

NOTE: This does not apply to dams containing hazardous waste and is not a release point

(C1-2) Receiving waters at compliance point 1affected by the release of process water or storm water contaminated by the mining activities or both must comply with the contaminant limits defined in Schedule C - Table 2.

Schedule C - Table 2 (Receiving water contaminant limits)

Parameter	Units	Minimum	Maximum
pH		6.5	8.5
EC	µS / cm Micro semens per centimetre	215	1000
TSS	mg/L	10	1150

NOTE: This does not apply to dams containing hazardous waste. Background is considered to be hydrographical data taken from DNRM&E gauging station, Duckponds.

(C1-3) The Nogoa River mixing zone is considered to be from the Ensham mine Haul road crossing downstream to the eastern boundary of mining lease ML7459.

(C1-4) The Boggy Creek mixing zone is considered to be the northern limit of mining lease ML70049 to the confluence of the Nogoa River.

(C1-5) Water release to Boggy Creek shall be only during periods of natural flow events. The duration of a natural creek flow event shall not be extended as a consequence of the mine water release.

(C1-6) The Authority holder within 20 working days of a water release provide a report to the administering authority detailing:

a) The reason for the release;
b) The location of the release;
c) All water quality monitoring results;
d) All other monitoring results;
e) Any general observations;
f) All calculations;
g) Any other matters pertinent to the water release event.

Sediment contaminant levels

(C2-1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the movement of sediment. Inscluding:

a) All clean waters, from undisturbed areas, kept separate from dirty waters from disturbed areas;
b) Water from disturbed catchments diverted into a the mine water management system and sedimentation dams;
c) Sedimentation dams designed to contain a 6 hour 10 year average recurrence interval rainfall;
d) Sediment shall be excavated from sediment dams as required to maintain design capacity.

Sewage effluent

(C3-1) Sewage effluent used for dust suppression or irrigation must not exceed sewage release limits defined in schedule C table 3.

Schedule C - Table 3 (Sewage effluent quality standards)

Quality	Release Limit	Units	Limit Type	Monitoring Frequency
5 Day BOD	20	mg/l	max	On release
pH	6 - 8		range	On release
Free Chlorine residuals	1.0	Mg/l	max	On release
Faecal coliforms (based on the average of a min of 5 samples)	1 000	Colonies per 100ml	max	On release

Groundwater

(C4-1) Groundwater affected by mining activities must be monitored at the locations and frequencies defined in schedule C table 4.

(C4-2) Subject to condition C4-1 groundwater levels must be monitored and groundwater draw down fluctuations in excess of 2m per year, not resulting from the pumping of licensed bores, must be notified within 14 days to the administering authority following completion of monitoring.

Schedule C - Table 4 (Groundwater monitoring locations)

Monitoring Point	Latitude (AMD)	Longitude (AMG)	Sampling Point	Frequency
Alluvium groundwater (upstream)	651140	7402054	GW2	Quarterly (depth)
Alluvium groundwater (downstream)	654627	7399513	GW1	Quarterly (depth)

(C4-3) The method of water sampling required by this environmental authority must comply with that set out in the latest edition of the Environmental Protection Agency's Water Quality Sampling Manual.

END OF CONDITIONS FOR SCHEDULE C

Schedule D - Noise and vibration

Noise nuisance

(D1-1) Subject to Conditions (D1-2) and (D1-3) noise from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.

(D1-2) When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following.

(D1-3) The method of measurement and reporting of noise levels must comply with the latest edition of the Environmental Protection Agency's Noise Measurement Manual.

END OF CONDITIONS FOR SCHEDULE D

Schedule E - Waste

(E1-1) Tyres stored awaiting disposal or transport for take-back and, recycling, or waste-to-energy options – should be stockpiled in volumes less than 3m in height and 200sq.m in area and at least 10m from any other tyre storage area.

(E1-2) All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10m radius of the scrap tyre storage area.

(E1-3) Disposal of scrap tyres resulting from the mining activities in spoil emplacement is acceptable provided:

a) all other stages (options) in the waste hierarchy have been considered;
b) tyres are placed as deep in the spoil as reasonably practicable.

(E1-4) Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

END OF CONDITIONS FOR SCHEDULE E

Schedule F - Land

Rehabilitation landform criteria

(F1-1) Progressive rehabilitation must commence when areas become available within the operational land.

(F1-2) Complete an investigation into rehabilitation of the disturbed areas and submit a report to the administering authority proposing success criteria and landform design criteria by December 2005 The rehabilitation success criteria must be detailed in the Plan of Operations.

(F1-3) A Rehabilitation Management Plan for all mining areas must be developed by December 2005 and submitted to the administering authority for approval. The Rehabilitation Management Plan must:

a) map existing areas of rehabilitation;
b) detail rehabilitation methods applied to areas in F1-3 (a);
c) identify success factors from areas in F1-3 (a);
d) detail future rehabilitation actions to be completed on areas in F1-3 (a);
e) identify three (3) analogue and three (3) rehabilitation sites to be used to develop rehabilitation success criteria;
f) detail landform design criteria;
g) detail future planned rehabilitation methods for disturbed areas;
h) detail planned native vegetation rehabilitation areas and corridors;
i) detail rehabilitation monitoring and maintenance requirements to be applied to all areas of disturbance;
j) detail end of mine landform design plan;
k) detail spoil characteristics, soil analysis, soil separation for use on rehabilitation;
l) detail potential problem and how they will be addresses;

(F1-4) Upon submission of the Rehabilitation Management Plan (condition F1-3) an amended EA will be issued redressing new rehabilitation landform criteria conditions relative to the results identified.

Final Voids

(F2-1) All reasonable and practicable measures shall be taken to minimise or prevent serious environmental harm being caused by the void other than the environmental harm constituted by the existence of the residual void itself and subject to any other condition within this environmental authority

(F2-2) If final voids are to be left, an investigation into void options must be prepared and a report submitted to the administering authority. The investigation must at a minimum include the following:

a) A study of options available for minimising final void area and volume; and
b) A void hydrology study, addressing the long-term water balance in the voids, connections to groundwater resources and water quality parameters in the long term; and
c) A pit wall stability study, considering the effects of long-term erosion and weathering of the pit wall and the effects of significant hydrological events; and
d) A hydrological study into the long-term risk of the Nogoa River, Boggy Creek / final void interaction, including erosion of the levee and extreme hydrological events, and the consequences of such interaction to the long-term stability of the final voids; and
e) A study of void capability to support native flora and fauna; and

f) A proposal/s for end of mine void rehabilitation success criteria and final void areas and volumes

These studies will be undertaken during the life of the mine, and will include detailed research and modelling. All studies must be complete prior to 5 years before end of open cut mining.

Topsoil Management

(F3-1) Topsoil resources, that are suitable for use in rehabilitation, must be salvaged ahead of mining disturbance, (or additional spoil placement) for strategic use in rehabilitation of the mine/spoil dump area. This topsoil removal and relocation must be documented in a Topsoil Stockpile Register.

Infrastructure

(F4-1) All infrastructure, constructed by or for the environmental authority holder during the mining activities including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining land owner / holder.

Note: this is not applicable where the landowner / holder is the environmental authority holder.

END OF CONDITIONS FOR SCHEDULE F

Schedule G - Community

Complaint response

(G1-1) All complaints received must be recorded including details of complainant, reasons for the complaint, investigations undertaken, conclusions formed and actions taken. This information must be made available for inspection by the administering authority on request.

END OF CONDITIONS FOR SCHEDULE G

Definitions

"acceptance criteria" means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have been significantly been disturbed by the mining activities. Acceptance criteria may include information regarding:

- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.

"airblast overpressure" means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dB).

"ambient (or total) noise" at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

"competent person" means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

"authority" means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

"blasting" means the use of explosive materials to fracture-

(a) rock, coal and other minerals for later recovery; or
(b) structural components or other items to facilitate removal from a site or for reuse.

"commercial place" means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

"dam" means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control flowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.

"environmental authority holder" means the holder of this environmental authority.

"hazardous waste" means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

"$L_{A\ 10,\ adj,\ 10\ mins}$" means the A-weighted sound pressure level, *(adjusted for tonal character and impulsiveness of the sound)* exceeded for 10% of any 10-minute measurement period, using Fast response.

"$L_{A\ 1,\ adj,\ 10\ mins}$" means the A-weighted sound pressure level, *(adjusted for tonal character and impulsiveness of the sound)* exceeded for 1% of any 10-minute measurement period, using Fast response

"$L_{A,\ max\ adj,\ T}$" means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

"land" in the "land schedule" of this document means land excluding waters and the atmosphere.

"land capability" as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

"land suitability" as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

"land use" term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

"mandatory reporting level" means the volume below the spillway crest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP is the annual exceedence probability).

"mineral" means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes—

(a) clay if mined for use for its ceramic properties, kaolin and bentonite;
(b) foundry sand;
(c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil there from;
(d) limestone if mined for use for its chemical properties;
(e) marble;
(f) mineral oil or gas extracted or produced from shale or coal by in situ processes;
(g) peat;
(h) salt including brine;
(i) shale from which mineral oil may be extracted or produced;
(j) silica, including silica sand, if mined for use for its chemical properties;
(k) rock mined in block or slab form for building or monumental purposes;

but does not include—

(l) living matter;
(m) petroleum within the meaning of the Petroleum Act 1923;
(n) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
(o) water.

"noxious" means harmful or injurious to health or physical well being, other than trivial harm.

"non-standard" means a mining operation that if in the opinion of the administering authority does not have a low risk of serious environmental harm and the activities can not comply with the criteria for standard mining activities prescribed in schedule 1A of the *Environmental Protection Regulation 1998*. The standard mining activity trigger criteria are as follows;

- the mining activities do not or will not cause more than 10 ha of land to be significantly disturbed at any one time;
- the mining activities do not or will not cause more than 5 ha of land to be significantly disturbed at any one time;
  (a) in a riverine area;
  (b) because of mine workings;
- the mining activities are not or will not be carried out in, or within 2 km of a category A *Environmentally Sensitive Area*;
- the mining activities are not or will not be carried out in, or within 1 km of a category B environmentally sensitive area;
- the mining activities do not include a level 1 environmentally relevant activity
- no more than 20 persons are carrying out or will, at any one time, carry out the mining activities;

"offensive" means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

"peak particle velocity (ppv)" means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms^{-1}).

"protected area" means - a protected area under the *Nature Conservation Act 1992*; or

- a marine park under the *Marine Parks Act 1992*; or

- a World Heritage Area.

"progressive rehabilitation" means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

"reference site" (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

"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.

"representative" means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

"residual void" means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

"self sustaining" means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

"sensitive place" means;

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- an educational institution; or
- a medical center or hospital; or
- a protected area under the Nature Conservation Act 1992, the Marine Parks Act 1992 or a World Heritage Area; or
- a public park or gardens.

"significant disturbance" – includes land

(a) if it is contaminated land; or

(b) it has been disturbed and human intervention is needed to rehabilitate it.

i. to a state required under the relevant environmental authority; or

ii. if the environmental authority does not require the land to be rehabilitated to a particular state – to its state immediately before the disturbance.

Some examples of disturbed land include:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)
- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining activities occur;
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or
- areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;
- by agreement with the EPA, areas previously significantly disturbed which have not achieved the

rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);

- areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;
- disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

"spillway" means passage or outlet from the dam through which surplus water flows.

"stable" means geotechnical stability of the rehabilitated landform where instability related to the excessive settlement and subsidence caused by consolidation / settlement of the wastes deposited, and sliding / slumping instability has ceased.

"trivial harm" means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than $5,000.

"watercourse" - Means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:

(a) continuous bed and banks;
(b) an extended period of flow for some months after rain ceases, and
(c) an adequacy of flow that sustains basic ecological processes and maintains biodiversity.

"waters" includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea) or any part-thereof.