EPBC Act referral

Australian Government
Department of Agriculture, Water and the Environment

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Title of proposal	2020/8669 - Ensham Life of Mine Extension, 35 km east of Emerald

Section 1

Summary of your proposed action

1.1 Project industry type Mining

1.2 Provide a detailed description of the proposed action, including all proposed activities

Ensham Mine is an existing open-cut and underground bord and pillar coal mine located approximately 35 kilometres east of Emerald in Queensland (Figure 1). The existing bord and pillar operations are located on ML 7459 and ML 70365 which extracts a portion of the various combined Aries/Castor seam plies.

The Proponent proposes to develop the Project to extend the life of the existing underground operations into an area identified as the Project Area commencing from within ML 7459, ML 70326, ML 70365, and ML 70366 to an area west of ML 70365 within part of Mineral Development Licence (MDL) 217.

The Project footprint is approximately 2,737 hectares (ha) and includes three zones:

- Zone 1: MDL 217 and requires a ML application to be lodged (approximately 2,134 ha)
- Zone 2: partially includes existing leases ML 70326, ML 70365 and ML 7459 (approximately 394 ha)
- Zone 3: partially includes existing leases ML 7459 and ML 70366 (approximately 209 ha).

Zone 1 does not contain any existing infrastructure and Zone 2 and 3 contains existing infrastructure that service the existing mine operations. No new surface infrastructure is proposed in zones 1, 2 or 3. The Project Area is illustrated on Figure 2.

The Project will continue to produce at currently production rates up to approximately 4.5 million tonnes per annum. This will enable the extension of the Ensham Life of Mine (LOM) by up to nine years to approximately 2037. The extension of the underground operation using existing infrastructure means that no surface construction or surface disturbance will be required to facilitate the Project.

Authorised holder for all mining tenements are Bligh Coal Limited, Idemitsu Australia Resources Limited and Bowen (Investments) Limited. Ensham mining operations include seven MLs and two Mineral Development Licences (MDLs) grant and expiry dates as shown on attached EA:

ML 7459 – Status: Granted – Name: Ensham
ML 7460 – Status: Granted – Name: Ensham 2
ML 70049 – Status: Granted – Name: Yongala
ML 70326 – Status: Granted – Name: White Hill
ML 70365 – Status: Granted – Name: Maria
ML 70366 – Status: Granted – Name: Dorrigo
ML 70367 – Status: Granted – Name: Volga
MDL 217– Status: Granted – Name: N/A
MDL 218 – Status: Granted – Name: N/A

Separate to this application, any necessary extension of existing MLs will be sought in future within the renewal period.

The new activities involved in undertaking the proposed action will include bord and pillar mining operations in zones 1, 2 and 3.

Rehabilitation and closure of the underground workings for the Project would commence on cessation of underground production. Surface infrastructure used for the Project would then be decommissioned and rehabilitated by 2043. Pits C and D which provide access to underground workings would be rehabilitated after underground production ceases and be rehabilitated by 2043. Rehabilitation would be followed by a 10 year monitoring period for the rehabilitated areas followed by a two year certification period which is expected to be complete by 2055. Existing Mine Infrastructure Area facilities, systems and equipment that service the existing mine will be utilised. These include:

- Use of the existing Coal Handling Plant (CHP) (which comprises a truck dump station, crushing and screening plant, product conveyors, stackers, reclaim system and loadout system) to include waste rock removal from the Run of Mine (ROM) coal. An upgrade of the CHP is currently being investigated which would include dry process area. The CHP upgrade module would be positioned adjacent to the existing processing plant and on pre-approved disturbed area. The waste rock will continue to be returned to the mining voids and used as fill as authorised under the current EA. After crushing, the product coal will continue to be stockpiled and loaded onto trains via the reclaim tunnel and bin.
- Use of underground equipment, including continuous underground miners, and shuttle cars, mobile bolters and feeder breakers
- Use of the existing underground coal clearance system (to transport extracted coal to the surface)
- Use of the existing ROM storage area including the associated heavy machinery (e.g. loaders and tippers)
- Existing underground ventilation systems will be extended into the Project Area as these areas are developed with current practices and procedures utilised. The current surface infrastructure is deemed to be sufficient for ventilation requirements so no new infrastructure will be required.
- Use of the existing compressed air system.

Demand modelling conducted for the Project indicates there is sufficient capacity to supply power for the LOM and no new surface electrical infrastructure will be required.

The Project will generate regulated, recyclable and general wastes, consistent with volumes currently generated. Waste generated as part of the Project will be managed using the existing waste management systems utilised by the current mine operations.

Waste mine water will continue to be managed using the existing water management system for the Project.

Over the life of the Project it is calculated that the total greenhouse gas (GHG) estimated emissions will be 4.7 million tonnes (Mt) of carbon dioxide equivalent (CO2-e), with an average annual emission of 0.26 Mt CO2-e. For the 2017/18 reporting year, Australia's total scope 1 emissions were 533 Mt CO2-e, and 161.5 Mt CO2-e for Queensland. The average annual GHG emissions from the Project represent 0.05% of Australia's 2017/18 emissions, and 0.16% of Queensland's 2017/18 emissions.

The major emissions source over the life of the Project is methane in ventilation air from the underground mining operations, which represents 66% of total GHG emissions. Other significant emissions sources include fugitive emissions from mined coal (direct / scope 1) and from the consumption of purchased electricity (indirect / scope 2). The estimated scope 1 and 2 emissions intensity is 0.12 tonnes of CO2-e per tonne of ROM coal produced.

The GHG estimates for the Project are currently being assessed. This will be presented as part of the State assessment process (Voluntary Environmental Impact Statement under the Environmental Protection Act 1994).

The current operational procedures and mains ventilation system will be utilised to manage incidental gas for the Project. The current surface infrastructure is deemed to be sufficient for ventilation requirements so no new infrastructure will be required.

The mining sequence proposed for the Project is based on the extension of the current mine workings. Figure 4 shows the predicted mine production levels and shows the existing mined out areas, existing approved sequences (under EA Permit No. EPML00732813) and the proposed extensions into the Project Area.

As shown in Figure 4, Zone 2 would be the first area to be accessed from ML 70365 in approximately 2021, before mining continues into the area north of the Nogoa River in Zone 1. South of the Nogoa River in Zone 1, mining would extend in a south-west direction from approximately 2027. Mining in Zone 3 would continue from ML 70365 beyond approximately 2028.

Mine design has been completed with a factor of safety (FoS) of 1.6 all for bord and pillar workings. Underground mining for the proposed Project will occur at a depth of approximately 120 to 210 m below the surface.

1.3 What is the extent and location of your proposed action?

See Appendix B

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)

The Project is located at the existing Ensham Mine, in the western part of the central Bowen Basin, 35 km east of Emerald along the Nogoa River in Central Queensland.

The Project is situated in an existing mining precinct with a number of other coal mining projects operating in the area. The Project is located within the Central Highlands Regional Council (CHRC) Local Government Area.

The land use for the Project Area is representative of the broader regional land use, and includes cropping, grazing and waterways with fringing riparian vegetation. The agricultural nature of the Project Area and surrounds is further defined through the Central Queensland Regional Plan designation of Priority Agricultural Area and Strategic Cropping Land. Queensland Land Use Mapping Program mapped land uses of the Project Area as irrigated cropping (approximately 43%), grazing irrigated modified pastures (approximately 3%) and residential and farm infrastructure (approximately 1%).

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The Project Area covers approximately 2,737 hectares (ha) and includes three zones:

- Zone 1: MDL 217 and requires a ML application to be lodged (approximately 2,134 ha)
- Zone 2: partially includes existing leases ML 70326, ML 70365 and ML 7459 (approximately 394 ha)
- Zone 3: partially includes existing leases ML 7459 and ML 70366 (approximately 209 ha).

1.7 Proposed action location

Address - Duck Ponds Road, Comet, QLD, 4702, Australia

1.8 Primary jurisdiction Queensland

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1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

☐ Yes ☑ No

1.10 Is the proposed action subject to local government planning approval?

☐ Yes ☑ No

1.11 Provide an estimated start and estimated end date for the proposed action	Start Date	01/01/2021
	End Date	31/12/2039

1.12 Provide details of the context, planning framework and state and/or local Government requirements

The Project will be subject to a range of approval requirements. It is anticipated that the Project would require:

- an EA amendment under the Environmental Protection Act 1994 (EP Act):

-The proposed action will require an application to amend the existing environmental authority (EA) for the Ensham Mine to authorise the activities under the EP Act. The amendment to the existing EA will likely be assessed as a 'major amendment' as the application will involve the addition of a new mining lease.

- An application to voluntary prepare an Environmental Impact Statement (EIS) under Sections 69 to 72 of the EP Act was submitted to the Department of Environmental and Science in May 2020.

- Grant of a new mining lease over Zone 1 in MDL217:

- The proposed action will involve assessment under the Mineral Resources Act 1989 (MR Act) for the grant of a mining lease within Zone 1 being that part of MDL217 that is included in the Project Area. A mining lease application has been submitted to the Department of Natural Resources, Mines and Energy (DNRME) (lodgement date 25/03/2020, reference ML 700061.

- Cultural Heritage Management Plan under the Aboriginal Cultural Heritage Act 2003

- The proposed action will be carried out in accordance with an approved Cultural Heritage Management Plan under the Aboriginal Cultural Heritage Act 2003. An earlier CHMP between Ensham Resources Pty Ltd and Western Kangoulu People was approved on 7 August 2007.

- Compliance with the right to negotiate process under the Native Title Act 1993 (Cth) due to a registered claim by the Western Kangoulu People over the Project area (Tribunal No. QC2013/002).

- Regional interest development approval:

- A Regional Interest Development Approval (RIDA) under the Regional Planning Interests Act 2014 (Qld) for resource activities proposed for the Project within areas mapped as a Strategic Cropping Area and a Priority Agricultural Area.

Assessment of impacts on underground water caused by the exercise of underground water rights would be undertaken through the EA amendment application process. The management of impacts on underground water will be undertaken in accordance with the Water Act 2000 (Qld). Separate to this application, any necessary extension of the existing MLs will be sought in future in the renewal period.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

Ensham has been a significant contributor to the Emerald community since 1993, and for the past 25 years has supported regional employment and local businesses. Ensham is committed to observing best practice community and stakeholder consultation throughout the life of the Project. Public consultation on the Project will be required under:

- Ensham Mine's existing Stakeholder Engagement Strategy,
- the Voluntary EIS assessment under the EP Act
- the Social Impact Assessment (SIA) under the EP Act.

Ensham's existing Stakeholder Engagement Strategy will continue throughout the development of the Project. Consultation has already been undertaken with directly affected landowners within the Project Area. Additionally, Ensham propose to utilise a number of consultation and engagement options including online meetings, community and business workshops (online), newsletters, media releases, advertising and Project website.

The EIS will be subject to a detailed public consultation process as part of the requirements under the EP Act. Stakeholder engagement will be required as part of this process, which will include the relevant Aboriginal Party for the Project Area – the Western Kangoulu people. Consultation with the Western Kangoulu people has commenced and is expected to continue through the life of the Project.

Community and stakeholder engagement for the purposes of informing the development of the SIA is proposed to be undertaken throughout April – June 2020. This will be a streamlined engagement process taking into account:

- the nature of the Project as un underground mining extension project with no construction activities and minimal

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changes to existing operations;

- participants' inability to travel or gather in groups due to control provisions for COVID-19; and
- stakeholders' pre-occupation with managing community responses to COVID-19.

SIA engagement strategies included:

- advertising the availability of consultation options through local newspapers and social media groups;
- emailing key stakeholders to seek their participation;
- an online survey for community members and community, economic and government organisations;
- an online workshop with non-Government and Government agencies;
- phone interviews with a range of stakeholders;
- provision of preliminary findings to CHRC and the Central Highlands Development Corporation (CHDC) for their feedback.

Ensham Mine acknowledge the current challenges with undertaking public consultation during the COVID-19 pandemic. The Stakeholder Engagement Strategy is continuously reviewed and updated to reflect these challenges and Ensham will be engaging with the key agencies to develop an effective and agreed communication strategy.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

In support of the EA Amendment application, an application has been made to DES to voluntarily prepare an EIS under the EP Act (May 2020). As part of this application, supporting documentation identifying the environmental values of interest to the Project Area has been submitted and reviewed by DES.

It is expected that, if DES approve the voluntary EIS application, the EIS will be completed in 2020.

Preliminary MNES (including terrestrial ecology) and Water Resource self-assessments have been undertaken in accordance with the EPBC Act Significant Impact Guidelines 1.1 and 1.3, these are provided as Appendix B and Appendix C.

These studies identified that there is the potential for the Project to impact on threatened ecological communities, listed threatened species, and groundwater resources however, due to the nature of the proposed Project activities, no significant impacts were determined.

1.15 Is this action part of a staged development (or a component of a larger project)?

☐ Yes ☑ No

1.16 Is the proposed action related to other actions or proposals in the region?

☑ Yes ☐ No

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation)

The existing underground mine commenced in 2010 under EA MIM800086202.

The proposed action does not include the operation of the existing mine. The Proposed action proposes an extension of the Ensham underground bord and pillar mine into the area identified as the Project Area (zones 1, 2 and 3). The Project will allow for the extension of the life of mine for the Ensham underground mine.

The Project would utilise the existing mine infrastructure area facilities for efficiency and to minimise disturbance. There will be no new surface disturbance associated with the Project.

The Proponent has also submitted an EA amendment application under the EP Act in March 2019. This application is still in progress and is to amend the EA to provide for rehabilitation criteria for the open-cut voids following cessation of mining. The Proposed Action is separate to and independent of this EA amendment application.

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Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

☐ Yes ☑ No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

☐ Yes ☑ No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

☐ Yes ☑ No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

☑ Yes ☐ No

Species or threatened ecological community

Brigalow (Acacia harpophylla dominant and co-dominant) (see Figure 5)
EPBC Act Status: Endangered

Impact

An assessment of the potential impacts to Brigalow (Acacia harpophylla dominant and co-dominant) (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.1.1 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance, unpublished. The Brigalow TEC was recorded within the Project Area during the field surveys and was found to be analogous to RE11.3.1. Due to the predicted low levels of subsidence and associated strains and tilts, no surface cracking is predicted above the Project Area. Therefore, impacts to surface topography and hydrology from subsidence effects are considered unlikely. Impacts of the Project on the Brigalow TEC are unlikely to be significant. This is due to the lack of construction and operational activities within the Project Area that would result in the reduced extent of the TEC or degradation of habitat.

The assessment indicates that the impacts of the Project on the Brigalow TEC are unlikely to be significant.

Species or threatened ecological community

Geophaps scripta scripta (Squatter pigeon (southern))
EPBC Act Status: Vulnerable

Impact

An assessment of the potential impacts to Geophaps scripta scripta (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.2.1 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance, unpublished. Despite extensive search effort, the squatter pigeon (southern) was not recorded within the Project Area during the field surveys. However, suitable habitat to support the foraging, breeding and dispersal requirements of the species was recorded during the field surveys

As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Direct mortality of squatter pigeon (southern) and destruction of their ground-based nests through vehicle traverses is a potential impact to the species. However, activities above ground, including vehicle traverses are will not expected to occur due to the lack of above ground works. Above ground vehicular use will be limited to existing access and tracks.

Project activities are unlikely to exacerbate other identified threats to the species beyond current levels, including pest and

weed incursion and alteration of fire regimes.
The outcome of this assessment is that the Project is considered unlikely to result in a significant impact to the species.

Species or threatened ecological community

Hirundapus caudacutus (White-throated needletail)
EPBC Act Status: Vulnerable / Migratory

Impact

An assessment of the potential impacts to Hirundapus caudacutus (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.2.2 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance, unpublished. This species is a non-breeding visitor within Australia, however it may forage and disperse above the Project Area. As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Existing noise and lighting conditions within the Project Area are typical of land adjacent to a mine. The Project itself will not increase traffic, lighting or noise beyond current conditions.

Project activities will not require the use of insecticides such as organochlorines which can impact the species indirectly through a decline in invertebrate prey.

The outcome of this assessment is that the Project is considered unlikely to result in a significant impact to the species.

Species or threatened ecological community

Rostratula australis (Australian painted snipe)
EPBC Act Status: Endangered

Impact

An assessment of the potential impacts to Rostratula australis (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.2.7 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance, unpublished. The Australian painted snipe was not recorded during the field surveys. While no recent (since 1980) spatially valid records occur nearby, the Project Area is within the species distribution and potential habitat is present. Potential habitat occurs in the Project Area in the form of temporary wetlands (such as gilgai formation and backwaters of the Nogoa River), which may provide intermittent foraging habitat for the species following heavy rainfall and artificial wetlands in the form of farm dams.

As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Changes to hydrology (e.g. through installation of infrastructure that comprise obstacles to surface flows or additional stormwater run-off) can potentially impact the extent of local catchments, run-off characteristics and intensity of flood flows, which can impact on the condition and stability of wetland and gilgai habitat. No works are proposed to occur within the Nogoa River and tributaries within the Project Area. No creek diversions are proposed as part of this Project. Due to the predicted low levels of subsidence and associated strains and tilts, no surface cracking is predicted above the Project Area. Therefore, impacts to surface topography and hydrology from subsidence effects are considered unlikely. Current environmental flows should not be impacted and no processes which will degrade wetland environments are expected.

Inappropriate treatment and / or disposal of hazardous liquid and solid wastes produced from mining activities and accidental spills of hazardous materials (e.g. fuel, chemicals) could result in point-source contamination of surrounding land. This can result in direct toxic impacts to fauna or degrade habitats. Activities above ground, including vehicle traverses are will not expected to occur due to the lack of above ground works. Therefore, the likelihood of increased of contamination of soils and water through hydro chemical spills as a result of the Project is considered to be low.

Project activities are unlikely to exacerbate other identified threats to the species beyond current levels (i.e. grazing and the associated trampling of wetland vegetation / nests; nutrient enrichment; predation by feral animals).

The outcome of this assessment is that the Project is considered unlikely to result in a significant impact to the species.

Species or threatened ecological community

Petauroides Volans
(Greater glider)
EPBC Act Status: Vulnerable

Impact

An assessment of the potential impacts to Petauroides Volans
(in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.2.3 of the

attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance. Within the Project Area, the greater glider was recorded on one occasion along the Nogoa River. The Nogoa River and the connected tributaries are considered suitable for breeding, denning, foraging and dispersal habitat due to the large patch size, connectivity and high abundance of hollow-bearing trees containing medium to large hollows. As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Existing noise and lighting conditions within the Project Area are typical of land adjacent to a mine. The Project itself will not increase traffic, lighting or noise beyond current conditions.

The outcome of this assessment is that the Project is considered unlikely to result in a significant impact to the species as all habitat will not be functionally impacted for this species and no important populations are expected to occur.

Species or threatened ecological community

Phascolarctos cinereus
(Koala)
EPBC Act Status: Vulnerable

Impact

An assessment of the potential impacts to Phascolarctos cinereus
(in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.2.4 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance.

No koalas or signs of their presence (i.e. characteristic scats and scratches) were detected during the field assessments. However, this species is expected to utilise the eucalypt woodlands within the Project Area and the riparian zone of the Nogoa River is likely to provide an important dispersal corridor and refuge habitat for the species in a regional context. As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Direct mortality of koala through vehicle traverses is a potential impact to the species. However, activities above ground, including vehicle traverses are will not expected to occur due to the lack of above ground works.

Key threats to the species were recorded within the Project Area with a wild dog confirmed by tracks in a dry drainage line and on motion detecting cameras within the wider study area. Project activities will not result in processes which facilitate an increase in dog attacks.

An assessment of the koala habitat within the Project Area has been undertaken using the Koala Habitat Assessment Tool. This determined that this habitat is considered to be critical to the survival of the koala.

The EPBC Act Referral Guidelines for the Vulnerable Koala (Department of the Environment, 2014) identifies five impacts which are likely to substantially interfere with the recovery of the koala. The result of this assessment is that the Project is considered to be unlikely to substantially interfere with the recovery of the koala.

Species or threatened ecological community

Denisonia maculate
(Ornamental snake)
EPBC Act Status: Vulnerable

Impact

An assessment of the potential impacts to Denisonia maculate (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.2.8 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance.

Despite extensive search effort, the ornamental snake was not recorded within the Project Area. However, marginal gilgai habitat for the species is located within the Project Area.

As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Changes to hydrology (e.g. through installation of infrastructure that comprise obstacles to surface flows or additional stormwater run-off) can potentially impact the extent of local catchments, run-off characteristics and intensity of flood flows, which can impact on the condition and stability of wetland and gilgai habitat. No works are proposed to occur within the Nogoa River and tributaries within the Project Area. No creek diversions are proposed as part of this Project. Due to the predicted low levels of subsidence and associated strains and tilts, no surface cracking is predicted above the Project Area. Therefore, impacts to surface topography and hydrology from subsidence effects are considered unlikely.. Current environmental flows should not be impacted and no processes which will degrade wetland environments are expected.

Inappropriate treatment and / or disposal of hazardous liquid and solid wastes produced from mining activities and accidental spills of hazardous materials (e.g. fuel, chemicals) could result in point-source contamination of surrounding land. This can result in direct toxic impacts to fauna or degrade habitats. Activities above ground, including vehicle traverses are will

not expected to occur due to the lack of above ground works. Above ground vehicular use will be limited to existing access and tracks. Therefore, the likelihood of increased of contamination of soils and water through hydro chemical spills as a result of the Project is considered to be low.

The Draft Referral Guidelines for the Nationally Listed Brigalow Belt Reptiles (Department of Sustainability Environment Water Population and Communities, 2011a) state that there is a high risk of significant impact to the species where two or more hectares of important habitat is cleared and a low risk of significant impact to the species where less than one hectare of important habitat is cleared. Potential habitat within the Project Area will not be subjected to direct or significant indirect impacts due to the mining method and lack of requirement for clearing.

The assessment indicates that due to avoidance of potential habitat, the Project will not impact important habitat for the species and as a result, any impact to the species is not considered to be significant.

Species or threatened ecological community

Elseya albagula
(Southern snapping turtle)
EPBC Act Status: Critically Endangered

Impact

An assessment of the potential impacts to Elseya albagula (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.2.6 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance. Although the southern snapping turtle was not confirmed within the Project Area, it was determined that the Nogoa River provides foraging, dispersal and breeding/nesting habitat. As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Changes to hydrology (e.g. through installation of infrastructure that comprise obstacles to surface flows or additional stormwater run-off) can potentially impact the extent of local catchments, run-off characteristics and intensity of flood flows, which can impact on the condition and stability of wetland habitat. Current environmental flows should not be impacted, with flow dependent on the release of irrigation water by Sunwater from the Fairbairn Dam upstream.

Inappropriate treatment and / or disposal of hazardous liquid and solid wastes produced from mining activities and accidental spills of hazardous materials (e.g. fuel, chemicals) could result in point-source contamination of surrounding land. This can result in direct toxic impacts to fauna or degrade habitats. Activities above ground, including vehicle traverses are will not expected to occur due to the lack of above ground works. Further, there will be no increase in the release of mine affected water from the existing mine. Therefore, the likelihood of increased of contamination of soils and water through hydro chemical spills as a result of the Project is considered to be low.

Project activities are unlikely to exacerbate other identified threats to the species beyond current levels (i.e. stocking of fish; recreational fishing; increased density of aquatic weeds in rivers and nesting habitat on river banks).

The outcome of this assessment is that the Project is considered unlikely to result in a significant impact to the species.

Species or threatened ecological community

Rheodytes leukops
(Fitzroy River turtle)
EPBC Act Status: Vulnerable

Impact

An assessment of the potential impacts to Rheodytes leukops
(in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.2.5 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance. Although the Fitzroy River turtle was not confirmed during field surveys it is known from the Nogoa River (based on previous records on ALA) and suitable habitat for breeding, foraging and dispersal was identified in association with the river. As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Changes to hydrology (e.g. through installation of infrastructure that comprise obstacles to surface flows or additional stormwater run-off) can potentially impact the extent of local catchments, run-off characteristics and intensity of flood flows, which can impact on the condition and stability of wetland habitat. Current environmental flows should not be impacted, with flow dependent on the release of irrigation water by Sunwater from the Fairbairn Dam upstream.

Inappropriate treatment and / or disposal of hazardous liquid and solid wastes produced from mining activities and accidental spills of hazardous materials (e.g. fuel, chemicals) could result in point-source contamination of surrounding land. This can result in direct toxic impacts to fauna or degrade habitats. Activities above ground, including vehicle traverses are will not expected to occur due to the lack of above ground works. Further, there will be no increase in the release of mine affected water from the current existing mine. Therefore, the likelihood of increased of contamination of soils and water through hydro

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chemical spills as a result of the Project is considered to be low.

Project activities are unlikely to exacerbate other identified threats to the species beyond current levels (i.e. pollution and siltation of rivers and creek habitats; predation of eggs by foxes, pigs, dingoes, cats, goannas and water rats).

The outcome of this assessment is that the Project is considered unlikely to result in a significant impact to the species.

2.4.2 Do you consider this impact to be significant?

☐ Yes ☑ No

2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

☑ Yes ☐ No

Migratory species

Apus pacificus (Fork-tailed swift)

Impact

An assessment of the potential impacts to Apus pacificus (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.3.1 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance.

The species was not recorded during the field surveys; however, records nearby to the Project Area exist, including from 2019 at Blackwater. All habitat within the Project Area may be used to forage and disperse over aerially. It is highly transitory and as such is unlikely to occupy the airspace above the Project Area for an extended period.

As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation will not occur. The Project itself will not increase traffic, lighting or noise beyond current conditions, and therefore indirect impacts during the operational phase of the Project are not expected.

Migratory species

Hirundapus caudacutus (White-throated needletail)

Impact

An assessment of the potential impacts to Hirundapus caudacutus (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.3.2 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance. As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation are will not expected to occur. Existing noise and lighting conditions within the Project Area are typical of land adjacent to a mine. The Project itself will not increase traffic, lighting or noise beyond current conditions.

Project activities will not require the use of insecticides such as organochlorines which can impact the species indirectly through a decline in invertebrate prey.

Migratory species

Myiagra cyanoleuca (Satin flycatcher)

Impact

An assessment of the potential impacts to Myiagra cyanoleuca (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.3.3 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance.

No breeding habitat is present in the Project Area, however Acacia and Eucalyptus dominated woodlands including remnant and high-value regrowth communities may provide suitable foraging and dispersal opportunities during migration.

This species was not recorded during the field surveys. However, several nearby records are available surrounding Emerald. All wooded habitats within the Project Area are considered to be ‘important habitat’ for this species.

As there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation will not occur. The Project itself will not increase traffic, lighting or noise beyond current conditions, and therefore indirect impacts during the operational phase of the Project are expected to be negligible.

Migratory species

Rhipidura rufifrons (Rufous fantail)

Impact

An assessment of the potential impacts to Rhipidura rufifrons (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.3.4 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance.

The rufous fantail has not previously been recorded from the Project Area, however it was recorded in semi-evergreen vine thicket community on a lateritic jump-up less than 2 km to the west of Zone 1 and multiple records are known from the region.

Riparian woodlands and dry woodland communities dominated by Eucalyptus and Acacia species within the Project Area provide foraging habitat and dispersal pathways whilst on northern and southern migration. It is unlikely that the rufous fantail breeds in the area due to the geographical location and lack of wet forest and rainforest. As such no breeding habitat has been mapped.

The key identified threat of land clearing and fragmentation in breeding habitats and migration corridors will not be exacerbated by the Project. Further, as there will be no above ground disturbance, indirect impacts associated with vegetation clearing such as fragmentation and edge effects, erosion and sedimentation will not occur. The Project itself will not increase traffic, lighting or noise beyond current conditions, and therefore indirect impacts during the operational phase of the Project are not expected.

Migratory species

Hydroprogne caspia (Caspian tern)

Impact

An assessment of the potential impacts to Hydroprogne caspia (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.3.5 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance.

A single caspian tern was recorded adjacent to the Project Area, within the wider study area during the November survey. Artificial wetlands in the form of farm dams within the Project Area represent suitable foraging habitat for the species.

Changes to hydrology (e.g. through installation of infrastructure that comprise obstacles to surface flows or additional stormwater run-off) can potentially impact the extent of local catchments, run-off characteristics and intensity of flood flows, which can impact on the condition and stability of wetland habitat. No works are proposed to occur in the artificial wetlands within the Project Area. Due to the predicted low levels of subsidence and associated strains and tilts, no surface cracking is predicted above the Project Area. Therefore, impacts to surface topography and hydrology from subsidence effects are considered unlikely. Current environmental flows should not be impacted and no processes which will degrade wetland environments are expected.

Inappropriate treatment and / or disposal of hazardous liquid and solid wastes produced from mining activities and accidental spills of hazardous materials (e.g. fuel, chemicals) could result in point-source contamination of surrounding land. This can result in direct toxic impacts to fauna or degrade habitats. Activities above ground, including vehicle traverses will not occur due to the lack of above ground works. Therefore, the likelihood of increased of contamination of soils and water through hydro chemical spills as a result of the Project is considered to be low.

Project activities are unlikely to exacerbate other identified threats to the species beyond current levels.

Migratory species

Plegadis falcinellus (Glossy ibis)

Impact

An assessment of the potential impacts to Plegadis falcinellus (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.3.6 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance.

Glossy ibis were recorded within both the Project Area and the wider study area during the field surveys. Due to the limited number of breeding sites within Australia, it is likely that the glossy ibis may utilise the wetlands within the Project Area for foraging only. Wetlands consist predominantly of man-made farm dams.

Changes to hydrology (e.g. through installation of infrastructure that comprise obstacles to surface flows or additional stormwater run-off) can potentially impact the extent of local catchments, run-off characteristics and intensity of flood flows, which can impact on the condition and stability of wetland habitat. No works are proposed to occur in the artificial wetlands or gilgai within the Project Area. Due to the predicted low levels of subsidence and associated strains and tilts, no surface cracking is predicted above the Project Area. Therefore, impacts to surface topography and hydrology from subsidence effects are considered unlikely. Current environmental flows should not be impacted and no processes which will degrade wetland environments are expected.

Inappropriate treatment and / or disposal of hazardous liquid and solid wastes produced from mining activities and accidental spills of hazardous materials (e.g. fuel, chemicals) could result in point-source contamination of surrounding land. This can result in direct toxic impacts to fauna or degrade habitats. Activities above ground, including vehicle traverses will not occur due to the lack of above ground works. Therefore, the likelihood of increased of contamination of soils and water

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through hydro chemical spills as a result of the Project is considered to be low.

Project activities are unlikely to exacerbate other identified threats to the species beyond current levels (i.e. grazing, burning, increased salinity, groundwater extraction, and habitat modification as a result of invasive macrophytes and fish).

Migratory species

Gallinago hardwickii (Latham's snipe)

Impact

An assessment of the potential impacts to Gallinago hardwickii (in accordance with the EPBC Act Policy Statement 1.1) has been undertaken and is presented in Section 9.3.7 of the attached technical report AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance.

The Latham's snipe was not recorded during the field surveys. Marginal habitat occurs in the Project Area in the form of temporary wetlands (such as melonholes) and farm dams, which may provide intermittent habitat for the species following heavy rainfall. The farm dams within the Project Area lack fringing vegetation and are heavily disturbed by cattle. Due to the geography of the Project Area and low value of the habitat, it is likely to be used occasionally for foraging only whilst on passage to south-eastern Australia. This species does not breed in Australia.

Changes to hydrology (e.g. through installation of infrastructure that comprise obstacles to surface flows or additional stormwater run-off) can potentially impact the extent of local catchments, run-off characteristics and intensity of flood flows, which can impact on the condition and stability of wetland habitat. Due to the predicted low levels of subsidence and associated strains and tilts, no surface cracking is predicted above the Project Area. Therefore, impacts to surface topography and hydrology from subsidence effects are considered unlikely. Current environmental flows should not be impacted and no processes which will degrade wetland environments are expected.

Inappropriate treatment and / or disposal of hazardous liquid and solid wastes and accidental spills of hazardous materials (e.g. fuel, chemicals) could result in point-source contamination of surrounding land. This can result in direct toxic impacts to fauna or degrade habitats. Activities above ground, including vehicle traverses will not occur due to the lack of above ground works. Therefore, the likelihood of increased of contamination of soils and water through hydro chemical spills as a result of the Project is considered to be low.

Project activities are unlikely to exacerbate other identified threats to the species beyond current levels (i.e. pollution of wetlands via nutrient enrichment and industrial discharge or salinisation of wetlands).

2.5.2 Do you consider this impact to be significant?

☐ Yes ☑ No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

☐ Yes ☑ No

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

☐ Yes ☑ No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

☐ Yes ☑ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☑ Yes ☐ No

Water resource

Surface water resources, including:

- Nogoa River
- Nogoa River floodplain
- Boggy Creek
- Winton Creek
- Corkscrew Creek
- Wetlands

Impact

A self-assessment of the impacts to surface water resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Potential impacts to hydrology are provided in Section 4.2 of the report and are summarised as:

- The predicted change in baseflow of the Nogoa River due to the Project is negligible

- No changes in the water quantity are predicted for the Nogoa River
- The surface topography will not be altered so there will be no changes to the area or extent of the Nogoa River or other creeks within the vicinity
- The Project will be undertaking bord and pillar mining below the floodplain and river. A subsidence study undertaken by Gordon Geotechniques (2020) (Appendix D, Section 3.1) determined that the predicted subsidence above the panel pillars following secondary coaling in the Project Area is typically less than 40 millimetres (mm) which is within the natural ground swell variation of up to 50 mm identified by DAWE. Subsidence reduces to typically less than 20 mm above the bell out pillars as they do not carry the full tributary area load on the sides of the panels. Due to the predicted low levels of subsidence and associated strains and tilts, no surface cracking is predicted above the Project Area. Therefore, impacts to surface topography and hydrology from subsidence effects are considered unlikely.
- Based on flood modelling undertaken for the Project, there will be no potential changes to flooding including instability and erosion of waterways.

Water resource

Surface water resources, including:
- Nogoa River
- Nogoa River floodplain
- Boggy Creek
- Winton Creek
- Corkscrew Creek
- Wetlands

Impact

A self-assessment of the impacts to surface water resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Potential impacts to water quality are provided in Section 4.3 of the report and are summarised as:
- The project will have no discernible impact on stream baseflows and as such there will be no negative impact on water quality in the Nogoa River or other creeks within the vicinity
- Discharge to Nogoa River (which is only undertaken when absolutely necessary for continuity of mining operations) will be undertaken in accordance with the current EA permit which specifies the location, frequency and water quality limits of discharge events.

Water resource

Surface water resources

Impact

A self-assessment of the impacts to surface water resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Potential cumulative impacts are provided in Section 6.1 of the report and are summarised as:
- There are several mines within a 50 km radius of the Project
- The impacts to surface water resources from the Project are negligible and are unlikely to have a greater impact on protected matters when considered together with other developments in the local and regional area.

Water resource

Surface water resources

Impact

A self-assessment of the impacts to surface water resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Potential impacts associated with timing are provided in Section 6.2 of the report and are summarised as:
- Controlled discharges to the Nogoa River are undertaken in accordance with the current EA permit which specifies the location, frequency and water quality limits of discharge events.

- Ensham Mine operational water balance model is currently being updated and will include the Project Area. This will be presented as part of the State assessment under the Voluntary EIS process.

Water resource

Surface water resources

Impact

A self-assessment of the impacts to surface water resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Potential impacts associated with scale are provided in Section 6.3 of the report and are summarised as:

- An assessment of potential impacts to water resources is ongoing. Assessment undertaken to date indicates that potential impacts to surface water resources as a result of the Project are likely to be comparable to Ensham Mine's existing operations. This will be presented as part of the State assessment under the Voluntary EIS process.
- The Nogoa River and its upstream and downstream catchment, associated floodplain, and tributaries have previously been considered as part of the assessment of the existing mine. The existing EA imposes conditions on current operations to manage the risk of releases to the Nogoa River catchment and associated surface waters. It is expected that the Project will continue to comply with current EA conditions.
- The Project will be undertaking bord and pillar mining below the floodplain and river. A subsidence study undertaken by Gordon Geotechniques (2020) (Appendix D, Section 4.3.1) determined that the predicted subsidence above the panel pillars following secondary coaling in the Project Area is typically less than 40 millimetres (mm) which is within the natural ground swell variation of up to 50 mm identified by DAWE. Subsidence reduces to typically less than 20 mm above the bell out pillars as they do not carry the full tributary area load on the sides of the panels. Due to the predicted low levels of subsidence and associated strains and tilts, no surface cracking is predicted above the Project Area. Therefore, impacts to surface topography and hydrology from subsidence effects are considered unlikely.

Water resource

Groundwater resource, including:

- Alluvial aquifers
- Porous Rock Aquifers
- Groundwater Users:
  - GDE's
  - Springs
  - Wetlands
  - Private bores
  - Great Artesian Basin

Impact

A self-assessment of the impacts to groundwater resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

The key findings of the groundwater impact assessment relating to hydrogeology provided in Section 5.2 of the report.

It is considered unlikely that the Project would result directly or indirectly in a substantial change in the hydrology of groundwater resources:

- The Nogoa River is not well connected to the underlying alluvium.
- No private landholder bores are predicted to have an additional decline in groundwater levels greater than 2 m at any point in time in the long term after the life of the Project. The largest predicted drawdowns in landholder bores were 10 cm.
- There is no predicted additional groundwater level drawdown within the alluvium in the Project Area as a result of the Project. However, some additional drawdown is observed in the wider study area, specifically east of the open-cut voids.
- The additional net indirect loss of groundwater from the Nogoa River alluvium within the study area to underlying strata due to the Project is considered negligible.
- There is no leakage from the coal measures predicted to flow into the alluvium, for both the existing mine and the Project.
- Post mining, the groundwater levels will recover slowly based on 200-year recovery simulations. Some permanent reduction in water levels is predicted in the target coal seams. However, as these are not used by any third-party user, this is

not considered a significant impact.

Water resource

Groundwater – resource, including:
- Alluvial aquifers
- Porous Rock Aquifers
- Groundwater Users:
  - GDE's
  - Springs
  - Wetlands
  - Private bores
  - Great Artesian Basin

Impact

A self-assessment of the impacts to groundwater resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Potential impacts to water quality are provided in Section 5.3 of the report and are summarised as:

The Project could not be considered to have a significant impact on groundwater quality, beyond the effects of already approved mining.

The groundwater impact assessment found that:

- groundwater quality is generally poor with salinity levels generally elevated above the relevant Guideline values for stock watering for groundwater in the alluvium and coal seams.
- The Project does not include any additional open voids or spoil emplacements, which could potentially impact the groundwater quality beyond the effects of approved mining. The Project is exclusively underground bord and pillar mining, leaving the excavated and dewatered underground voids in the coal body to recharge naturally over time. The inflowing water will have the same quality than the water previously stored in the coal.
- Impacts to GDE's are negligible as no additional drawdown larger than 0.5 m was predicted for groundwater in the alluvium in the Project Area.

Water resource

Groundwater resource

Impact

A self-assessment of the impacts to groundwater resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Potential cumulative impacts are provided in Section 6.1 of the report and can be summarised as:

- The predictive numerical groundwater model for the Project included the approved Ensham open-cut mine, the approved underground mining and the Project. The impacts from the Project were calculated as incremental impacts from approved mining operations (open-cut and underground).

The cumulative impacts of other current of foreseeable developments that may have cumulative impacts with the projects were assessed qualitatively. There are several mines within a 50 km radius of the Project, none of them have been included in the groundwater model. However, a review of the combination of the target seams and distance concluded that there aren't any likely cumulative impacts expected from those mines.

Water resource

Groundwater resource

Impact

A self-assessment of the impacts to groundwater resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

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Potential impacts associated with timing are provided in Section 6.2 of the report and are summarised as:

- The groundwater model that was used to quantify the impacts of the action was set up to capture both short-term and long-term impacts. The model determined that the total recovery period is 220 years and the hydrographs are flattening out for all bores, which indicates long-term equilibrium has been captured.

Water resource

Groundwater resource

Impact

A self-assessment of the impacts to groundwater resources has been undertaken with reference to the Significant Impact Guidelines 1.3 - Coal seam gas and large coal mining developments – impacts on water resources (DoE, 2013). This is presented in attached document AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Potential impacts associated with scale are provided in Section 6.3 of the report and are summarised as:

- The groundwater model that was used to quantify the impact of the action was set up large enough to capture regional processes, such as the outcrop area of the coal seams. The impacts to hydrology and water quality reflect this.
- The model used an unstructured grid, which allowed to refine the modelling cells on a local scale. The impacts to hydrology and water quality reflect this.

Water resource

Additional supporting reports in Section 4.3. Please note, we were unable to upload all supporting attachments to Section 2.14.

Impact

Supporting reports in Section 4.3.

2.9.2 Do you consider this impact to be significant?

☐ Yes ☑ No

2.10 Is the proposed action a nuclear action?

☐ Yes ☑ No

2.11 Is the proposed action to be taken by a Commonwealth agency?

☐ Yes ☑ No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☑ No

2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

☐ Yes ☑ No

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Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

The flora values of the Project Area are considered typical for the Brigalow Belt Bioregion with large areas of land historically cleared for grazing and cropping. Areas of remnant vegetation remain, particularly along the Nogoa River and adjacent tributary watercourses. The north-east portion of Zone 2 contains areas of mine rehabilitation.

Flora surveys did not identify threatened flora species listed under the EPBC Act or the Nature Conservation Act 1992 (NC Act).

The fauna habitat values within the Project Area are generally of low conservation value. However, some habitats such as riparian zones and remnant woodlands provide movement opportunities for fauna populations and possess greater potential for supporting conservation significant and migratory fauna. Terrestrial ecology field surveys recorded 205 fauna species, including 128 bird, 31 reptile, 34 mammal, and 12 amphibian species. An additional eight introduced fauna species, four of which are listed as restricted matter under the Biosecurity Act 2014.

An aquatic ecology assessment of ecological values found there are no high ecological value waters or surface expression groundwater dependent ecosystems in or surrounding the study area. The stygofauna community within the study area have a low environmental value owing to limited occurrence of stygofauna and water quality of groundwater only potentially suitable for stygofauna on basis of high electrical conductivity and high depth to water table. Aquatic MNES species and ecological communities that are listed as potentially occurring in the study area of the project are limited to the Southern snapping turtle (Elseya albagula) (critically endangered) and the Fitzroy River turtle (Rheodytes leukops) (vulnerable). Although neither species have been confirmed within the Project Area during surveys, it was determined that the Nogoa River provides suitable habitat for breeding, foraging and dispersal for both turtles.

3.2 Describe the hydrology relevant to the project area (including water flows)

The Project is located within the floodplain of the Nogoa River Catchment area which forms part of the Nogoa Mackenzie Water Supply Scheme.

The Nogoa River flows to the north of B Pit and south of C Pit in a south-easterly direction (see Figure 4). The Nogoa River has a floodplain up to 5 km wide downstream of the Ensham Mine. Winton Creek flows into an anabranch of the main channel of the Nogoa River joining it within the Ensham Mine mining lease (ML 7459) where the floodplain varies from 1-2 km wide. Mosquito Creek is a tributary of the Nogoa River and flows through the Project Area.

Boggy Creek is the main tributary within the existing MLs. It flows generally north to south and joins the Nogoa River downstream of the Winton Creek confluence on the northern side of the river within ML 7459. A diversion has been built along Boggy Creek to permanently divert flows around the mine footprint. Recent observations suggest Boggy Creek is ephemeral with waterholes persisting for very brief periods shortly after flow events.

Corkscrew Creek runs generally west to east, south of Ensham Mine, before flowing into Sandhurst Creek which in turn flows to the Comet River just upstream of the confluence with the Nogoa River.

3.3 Describe the soil and vegetation characteristics relevant to the project area

The Project Area consists of relatively flat grazing and agricultural land and includes a section of the alluvial flood plain of the Nogoa River. The majority of the vegetation in the area has been cleared in the past for grazing and agriculture. Soils north of the river are well-drained as opposed to the cracking black soils to the south.

The majority of the Project Area (2,262.90 ha) was validated during ecological surveys to comprise non-remnant vegetation (Appendix B, Section 5.3). This is associated with either non-remnant woodland, grasslands mostly dominated by Cenchrus ciliaris* (buffel grass), agricultural cropping land and mine rehabilitation areas.

Remnant, HVR and regrowth vegetation was also confirmed within the Project Area and comprises a total area of 474.24 ha. This vegetation was categorised into eight communities:

- Acacia harpophylla open forest on alluvial plains
- Acacia harpophylla low open forest on alluvial plains
- Eucalyptus coolabah woodland on alluvial plains
- Eucalyptus camaldulensis woodland fringing drainage lines
- Eucalyptus theozetiana with a midstorey of Acacia harpophylla on lower scarp slopes on Cainozoic lateritic duricrust
- Acacia shirleyi woodland on Cainozoic lateritic duricrust and scarp retreat zones
- Brigalow regrowth on clay plains and lower scarp slopes on Cainozoic lateritic duricrust
- Acacia regrowth on clay plains and lower scarp slopes on Cainozoic lateritic duricrust.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

No outstanding natural features exist within the vicinity of the Project Area.

3.5 Describe the status of native vegetation relevant to the project area

The Department of Natural Resources, Mines and Energy (DNRME) regulated vegetation mapping (Version 10.0) and

regional ecosystems (RE) mapping (Version 11.0) was reviewed to determine the extent of regulated vegetation and associated REs across the Project Area. Category B regulated vegetation comprising nine REs are mapped as occurring within the Project Area. Based on the biodiversity status classifications, four REs are listed as endangered, three as of concern and two as no concern at present. VM Act status identifies four REs as endangered, one as of concern and four as least concern.

Category C Regulated vegetation mapping was also consulted to determine the extent of high value regrowth (HVR) within the Project Area. HVR occurs in several small patches, which have not been cleared for over 15 years but is not yet mature enough to meet remnant status as defined under the Vegetation Management Act 1999 (VM Act).

Surveys have identified one TEC, Brigalow, (Acacia harpophylla dominant and co-dominant), under the EPBC Act.

Surveys did not identify threatened flora species listed under the EPBC Act or the NC Act.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area

The Project Area has an elevation of approximately 150 m Australian Height Datum (AHD). To the south of Nogoa River the landscape is flat, consistent with floodplains. A small ridge forms north of the Nogoa River with an elevation of up to approximately 180 m.

3.7 Describe the current condition of the environment relevant to the project area

The condition of the Project Area is heavily degraded with historical use of the site for cattle grazing and broad acre cropping. Ground and shrub layer vegetation communities have varying levels of disturbance, with terrain influencing accessibility for cattle. Exotic shrub and groundcover species are common throughout the Project Area. Four weeds of national significance were identified on the Project Area. Limited connectivity exists for fauna as connectivity is predominately grassed interspersed with very scattered low regrowth trees and shrubs.

Biocondition assessments have been undertaken for the Project Area and found the ecological function of the Project Area is compromised to some degree.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

A search of relevant Commonwealth, State and local heritage registers was conducted on 28 February 2020. There are no Commonwealth Heritage places relevant to the Project Area. There are also no other historical heritage sites within the Project Area. There is limited potential that the Project Area retains evidence of early pastoral activities.

3.9 Describe any Indigenous heritage values relevant to the project area

A search of the Department of Aboriginal Torres Strait Islander Partnerships (DATSIP) Cultural Heritage Database and Register on 10 July 2019 and updated on 4 March 2020 indicates there are six previously registered Aboriginal cultural heritage sites within Zone 2 of the Project Area. These six sites include six culturally modified trees, five of which are clustered within 50 m of each other. This patterning, and the fact that the nearest 17 sites are also culturally modified trees, suggests that there is a high potential for culturally modified trees to be present along the Nogoa River and its tributaries where remnant vegetation exists. A search of the wider area (with a 20 km buffer around the Project Area), identified 81 sites in total, the majority of which are artefact scatters.

Although only Zone 2 had previously registered DATSIP sites, a number of clearances have occurred across the wider mining lease area including the Project Area. A number of cultural heritage sites were identified during recent works in Zone 1 (Cultural Heritage Management Australia, 2018, 2019). In total, 208 cultural heritage sites have previously been identified in the Project Area during exploration activities. Nearly all of these sites are stone artefact concentrations with the vast majority within 100 m of a drainage line. It is understood that while some sites may have been relocated this has occurred within the Project Area. While the number of ‘sites’ recorded in Zone 1 could be considered to be quite high for the size of the Project Area, many of the sites that were recorded are in close proximity to one another (some as close as 2 m). Instead of referring to these as sites, it is more appropriate to consider these as stone artefact concentrations (SACs).

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

The Project Area comprises nine registered land parcels consisting of freehold, reserve and lands lease tenure. Land parcels include Lot A AP7202 (reserve), Lot 2 CP911010 (freehold), Lot 8 TT345 (freehold), Lot 30 CP864574 (freehold), Lot 33 RP864576 (freehold), Lot 32 RP908643 (freehold), Lot 31 CP864573 (freehold), Lot 6 TT309 (reserve and term lease), Lot 7 TT309 (reserve and term lease). Part of the Project Area is also subject to a secondary interest, being a strata easement.

3.11 Describe any existing or any proposed uses relevant to the project area

Land uses within the wider region include cropping, grazing and resource activities. The existing land uses of the Project Area include resource activities, cropping, grazing land and waterways with fringing riparian vegetation. Part of the Project Area includes areas within the existing Ensham Mine mining leases. The mine currently consists of both open-cut and underground coal mining activities. Two homesteads are located within the Project Area and an additional 10 homesteads

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are located in the vicinity of the Project Area.

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Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

No significant impacts on MNES are expected to occur, as no clearing or surface infrastructure is required, and subsidence is not predicted to be material within the confines of seasonal variation in surface levels. The Project itself is not expected to increase traffic numbers, lighting or noise beyond current conditions, and therefore the impacts during the operational phase of the Project are expected to be negligible. Specific mitigation and monitoring measures currently employed at Ensham Mine will continue for the Project.

Avoidance

The Project has been designed to utilise existing mining infrastructure at the Ensham Mine. Subsequently, the need for additional disturbance, including the clearing of vegetation/habitat within the Project Area to support the Project has been avoided.

No alterations to surface topography are proposed which will avoid impacts to the area and extent of Nogoa River, the Nogoa River floodplain, and other creeks.

Minimise

The development of the Project will allow for mining at Ensham Mine to transition from open cut operations to underground operations. In doing so several current disturbances associated with open cut mining will cease, which will result in a reduction of impact levels associated with dust, noise, light and erosion.

The Project has predicted a very conservative average mine inflow of 11 mega litres per day (ML/day), which is on average 4.3 ML/day more than the currently approved mining operations.

The mining method for the Project is bord and pillar utilising a place change mining system with the pillars left in-situ. The pillars remain to support the roof, ensuring that subsidence of the surface does not occur. The strength and load of pillars are designed to ensure long term stability and are calculated using a Factor of Safety (FoS). Pillars will be designed to be stable with no predicted subsidence, and a FoS of 1.6 for bord and pillar workings. A subsidence study undertaken by Gordon Geotechniques (2020) (Appendix D, Section 4.3.1) determined that the predicted subsidence above the panel pillars following secondary coaling in the Project Area is typically less than 40 millimetres (mm) which is within the natural ground swell variation of up to 50 mm identified by the Department of Agriculture, Water and the Environment (DAWE). Subsidence reduces to typically less than 20 mm above the bell out pillars as they do not carry the full tributary area load on the sides of the panels.

Mitigate

Ensham Mine currently complies with the existing EA. The following mitigation measures are proposed to be used throughout the duration of the Project:

- maintain dust suppression in accordance with the existing dust management plans: EOP.01.00.01 Air Quality Monitoring and SOP.09.12.01 Maintaining and Watering Mine Roads.
- maintain noise and ground vibration management measures in accordance with the existing management plan: E0P. 04.00.01 Noise and Blast Monitoring.
- continue to undertake refuelling and chemical storage in accordance with the existing management plans: SOP. 09.01.04 Using Hazardous Substances, SOP.09.06.06 Servicing and Refuelling Equipment and EIMP.05.00.02 Hydrocarbons.
- weed and pest management strategies to continue to be implemented for controlling the spread of weeds and pests, particularly vehicles traversing the Project Area, as per the existing management plans: EOP.06.00.03 Weed and Feral Animal Management and EIMP.06.00.01 Land.

There will be no new surface disturbance associated with the Project, and no additional impacts to ecological values. No additional mitigation and management measures are proposed.

The existing mine water management system is considered adequate to meet the ongoing operational requirements of the Project.

Monitoring

Ensham Mine currently complies with the existing EA. Monitoring measures that will be undertaken within the Project Area are consistent with current practices and monitoring plans, including:

- annual LiDAR surveys to detect signs and impacts of any subsidence.
- EOP.01.00.01 Air Quality Monitoring
- E0P.04.00.01 Noise and Blast Monitoring
- EOP.06.00.03 Weed and Feral Animal Management
- EIMP.06.00.01 Land.

Groundwater and surface water monitoring will continue during the Project under the conditions of the amended EA and as required for site operations and environmental monitoring.

Groundwater quality monitoring will continue to be undertaken on a quarterly basis across the current monitoring network in accordance with condition C39 of the EA. A further three monitoring bores will be established for the Project, one of which was installed in October 2019.

Surface water quality monitoring will continue to be undertaken in accordance with condition C23 of the EA. Ensham Mine's

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

existing Receiving Environment Monitoring Program (REMP) will be extended to include surface water quality monitoring for the Project.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

No outcome-based conditions are proposed for the Project.

Matters protected by the EPBC Act that may be affected by the proposed action are limited to listed species and their habitats; threatened ecological communities; and water resources. Measures to avoid, minimise and mitigate impacts will be undertaken to avoid significant impacts to these matters and meet current approval requirements. These include:

- No direct or indirect impacts to threatened species
- No direct or indirect impacts (including clearing) of listed threatened and migratory MNES species habitat
- No direct or indirect impact (including clearing) of listed TECs

An assessment of potential impacts to surface water resources is ongoing. Assessment undertaken to date indicates that potential impacts to groundwater and surface water resources as a result of the Project are likely to be comparable to Ensham Mine's existing operations.

Based on Ensham Mine's current compliance with the existing EA, and the scale and risks of impacts associated with the Project's activities, there are not expected to be any significant impacts to matters protected by the EPBC Act.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- ☐ World Heritage properties
- ☐ National Heritage places
- ☐ Wetlands of international importance (declared Ramsar wetlands)
- ☐ Listed threatened species or any threatened ecological community
- ☐ Listed migratory species
- ☐ Marine environment outside Commonwealth marine areas
- ☐ Protection of the environment from actions involving Commonwealth land
- ☐ Great Barrier Reef Marine Park
- ☐ A water resource, in relation to coal seam gas development and large coal mining development
- ☐ Protection of the environment from nuclear actions
- ☐ Protection of the environment from Commonwealth actions
- ☐ Commonwealth Heritage places overseas
- ☐ Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

Significant impact assessments were undertaken which determined that the Project is unlikely to have a significant impact on MNES protected under the EPBC Act as there will be:

•No direct or indirect impacts to threatened species

•No direct or indirect impacts (including clearing) of listed threatened and migratory MNES species habitat

•No direct or indirect impact (including clearing) of listed TECs

•With respect to surface water hydrology:

- The predicted change in baseflow of the Nogoa River due to the Project is expected to be negligible
- No changes in the water quantity are predicted for the Nogoa River
- The surface topography will not be altered so there will be no changes to the area or extent of the Nogoa River or other creeks within the vicinity
- Due to the nature of the proposed mining method, no large-scale subsidence is predicted
- Based on flood modelling undertaken for the Project, there are unlikely to be changes to flooding including instability and erosion of waterways

•With respect to surface water quality, the Project is not anticipated to have a significant impact on stream baseflows and as such there is unlikely to be a negative impact on water quality in the Nogoa River or other creeks within the vicinity

•With respect to groundwater hydrology:

- The Nogoa River is not well connected to the underlying alluvium.
- No private landholder bores are predicted to have an additional decline in groundwater levels greater than 2 m at any point in time in the long term after the life of the Project. The largest predicted drawdowns in landholder bores were 10cm.
- There is no predicted additional groundwater level drawdown within the alluvium in the Project Area as a result of the Project. However, some additional drawdown is observed in the wider study area, specifically east of the open-cut voids.
- The additional net indirect loss of groundwater from the Nogoa River alluvium within the Study area to underlying strata due to the Project is considered negligible.
- There is no leakage from the coal measures predicted to flow into the alluvium, for both the existing mine and the Project.
- Post mining, the groundwater levels will recover slowly based on 200year recovery simulations. Some permanent reduction in water levels is predicted in the target coal seams. However, as these are not used by any third-party user, this is not considered a significant impact.

•With respect to groundwater quality:

- groundwater quality is generally poor with salinity levels generally elevated above the relevant Guideline values for stock watering for groundwater in the alluvium and coal seams.
- The Project does not include any additional open voids or spoil emplacements, which could potentially impact the groundwater quality beyond the effects of approved mining. The Project is exclusively underground bord and pillar mining, leaving the excavated and dewatered underground voids in the coal body to recharge naturally over time. The inflowing water will have the same quality than the water previously stored in the coal.

•Impacts to GDEs are negligible as no additional drawdown larger than 0.5m was predicted for groundwater in the alluvium in the Project Area.

Ensham Mine currently complies with the existing EA through the adoption of established site control and monitoring measures. Consistent with current practice at Ensham Mine, mitigation and monitoring measures will be adopted for the Project to ensure compliance with an amended EA.

No direct or indirect impacts to threatened species and ecological communities, or migratory species are expected to occur,

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as no clearing or surface infrastructure is required, and subsidence is not predicted to be material within the confines of seasonal variation in surface levels. The Project is not expected to increase traffic numbers, lighting or noise beyond current conditions, and therefore the impacts during the operational phase are expected to be negligible.

Assessment of potential impacts to water resources is ongoing and indicates that impacts as a result of the Project are unlikely to be significant. A subsidence assessment (Appendix D, Section 5) undertaken for the Project does not predict any material subsidence which would impact on the surface water resources in the Project Area. Ensham mine operational water balance model is currently being updated and will include the Project Area. This will be presented as part of the State assessment under the Voluntary EIS process.

Based on Ensham Mine's current compliance with the existing EA, and the scale and risks of impacts associated with the Project's activities, there are not expected to be any significant impacts to matters protected by the EPBC Act. Therefore, based on the assessment undertaken to date, it is considered unlikely that the action will have a significant impact on a water resource for the purposes of the EPBC Act.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

In the last 5 years, Ensham Mine has had no systematic or ongoing non-compliances with environmental laws, nor have the Ensham Mine's operations caused any serious environmental harm or had any serious environmental incidents.
In the last 5 years, Ensham Mine has not had any environmental licence or authority suspended or revoked.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

The Ensham Mine has had no prosecution or any Court proceedings commenced against it for a breach of environmental law or conservation law. In respect of the other operations in which IAR has an interest in, the only relevant matter to disclose for Idemitsu Australia Resources Pty Limited is in respect of its related entity, Boggabri Coal Pty Ltd. In 2014, Boggabri Coal Pty Ltd pleaded guilty in proceedings for a breach of the Environmental Planning and Assessment Act 1979 (NSW) for acting without development consent or not in accordance with development consent (Secretary, Department of Planning and Environment v Boggabri Coal Pty Limited [2014] NSWLEC 154). The Court recognised measures being implemented by Boggabri Coal Pty Ltd and IAR to prevent the reoccurrence of the incident.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

☑ Yes ☐ No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

Idemitsu Australia Resources Pty Ltd have an Environmental Management Policy, signed by the company managing director and chief operating officer, that state it and its group companies are committed to the responsible management of all environmental aspects which could be reasonably be or are directly impacted by their operations and projects. This commitment includes (but is not limited to):

- As a minimum comply with all environmental legislation applicable to the regions in which we operate, and
- Commit to establishing and maintaining constructive communications with our stakeholders so we clearly understand the environmental impacts from our operations and projects.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

☑ Yes ☐ No

6.4.1 EPBC Act No and/or Name of Proposal

Previous EPBC Approval 2004/1822 approved the extension of the Ensham open-cut mine and commencement of underground mining effective from 19 February 2007 to 31 January 2028.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 7

Information sources

Reference source

AECOM (2020), Ensham Life of Mine Extension Project: Matters of National Environmental Significance, unpublished.

Reliability

High
This study is reliable as it is current and based on survey work undertaken in 2019 and 2020. Previous ecology surveys have been used to fill any information gaps.

Uncertainties

Low
Field surveys and information obtained at a point in time. The survey may not encompass all annual wet and dry periods. Transient fauna movements are also unaccounted with the exception of those identified during survey works.

Reference source

AECOM (2020), Ensham Life of Mine Extension Project: Fauna Technical Report, unpublished. (Confidential)

Reliability

High
This study is reliable as it is current and based on survey work undertaken in 2019 and 2020. Previous ecology surveys have been used to fill any information gaps.

Uncertainties

Low
The survey may not encompass all annual wet and dry periods. Transient fauna movements are also unaccounted with the exception of those identified during survey works.

Reference source

AECOM (2020), Ensham Life of Mine Extension Project: Flora Technical Report, unpublished. (Confidential)

Reliability

High
This study is reliable as it is current and based on survey work undertaken in 2019 and 2020. Previous ecology surveys have been used to fill any information gaps.

Uncertainties

None
There is no uncertainty in the ground truthed findings of the report.

Reference source

AECOM (2020), Ensham Life of Mine Extension Project: EPBC Self-Assessment Water Trigger, unpublished.

Reliability

High
This study assesses itself against current legislation and guidelines. The study is based on a recent groundwater impact assessment (SLR, 2020).

Uncertainties

Low
This study is based off a current groundwater impact assessment by SLR and assumes all model limitations.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source

SLR (2020), Ensham Life of Mine Extension Project: Groundwater Impact Assessment, unpublished.

Reliability

High
Groundwater modelling conducted in accordance with the Australian groundwater monitoring guidelines and the Murray Darling Basin commission groundwater flow modelling guideline.

Uncertainties

Low
Model limitations are outlined within the report. Findings of the report were the 0.5 m contour of the maximum additional drawdown in the unconsolidated material does not extend to any of the groundwater dependent ecosystems in the Project Area.

Reference source

AECOM (2020), Environmental Values Workshop Report: Ensham Life of Mine Extension Project, unpublished.

Reliability

High
This report is informed by several studies conducted by technical specialists in support of the Project.

Uncertainties

Low
Unless survey work has occurred, all studies are reliant on desktop searches.

Reference source

Cultural Heritage Management Australia. 2018. Ensham Resources Mine Site MDL 217 Exploration Boreholes Field Period 19-6-2018 to 20-6-2018 Aboriginal Cultural Heritage Assessment, unpublished. (Confidential)

Report for Western Kangoulu.
Cultural Heritage Management Australia. 2019. Ensham Resources Cultural Heritage Assessment of Seismic Areas: Field Period 28/10/2019 to 8/11/2019. Unpublished Report for Western Kangoulu. (Confidential)

Reliability

High
These reports were conducted by technical specialists in support of the Project.

Uncertainties

Low

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

☑ Yes ☐ No

8.0 Provide a description of the feasible alternative

A Prefeasibility Assessment (PFA) undertaken for the Project has evaluated alternatives and selected a preferred case based on its technical and financial feasibility (Idemitsu, 2020).

Six underground mine development cases were evaluated in the PFA. All development cases considered are located within the Project Area. The Project Area comprises nine registered land parcels consisting of freehold, reserve and lands lease tenure. Land parcels include Lot A AP7202 (reserve), Lot 2 CP911010 (freehold), Lot 8 TT345 (freehold), Lot 30 CP864574 (freehold), Lot 33 RP864576 (freehold), Lot 32 RP908643 (freehold), Lot 31 CP864573 (freehold), Lot 6 TT309 (reserve and term lease), Lot 7 TT309 (reserve and term lease). Part of the Project Area is also subject to a secondary interest, being a strata easement.

MDL Case 1 was considered the preferred option. The selected option has been evaluated and proven to be technically and financially feasible (Idemitsu, 2020).

A 'do nothing' scenario was also considered as an option (i.e. not taking the action). This option showed that employment for the underground workforce of approximately 603 FTEs and the community and economic benefits to the region would cease in 2028 should the Project not be developed. Furthermore, State royalties of approximately $256 million and Commonwealth tax revenue from the coal resource would be foregone and the contribution to Queensland's growing export industry would not be realised.

Project alternatives:

- Base Case: thick and thin seam in ML's only, includes Zone 2 and Zone 3. Maintain current operation (5-production units), excluding CHP.
- Long Term Plan: Base Case including thick seam in Zone 1. Maintain current operation (5-production units), excluding CHP.
- MDL Case 1: Base Case - including the Zone 1 thick & thin seam, excluding CHP. Maintain current operation (5-production units) with no coal washing.
-MDL Case 2: Base Case – including the Zone 1 thick & thin seam and including CHP. Maintain current operation (5-production units) and commence with coal washing when required in 2027.
-MDL Case 3: MDL Case 1 – without dilution.

8.1 Select the relevant alternatives related to your proposed action

☐ Timeframes
☐ Locations
☑ Activities

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

8.9 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

The alternative will be presented within the Voluntary EIS. The EIS will be subject to a detailed public consultation process as part of the requirements under the Queensland EP Act, which will include engagement with Indigenous stakeholders.

8.10 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

No assessments will be carried out on the project alternative.

8.12 Nominate any matters of National Environmental Significance that are likely to be impacted by this alternative proposal by ticking the relevant checkboxes

8.12.1 Provide further information on potential impacts of matters of environmental significance that you have nominated above

8.13 Describe any impacts on the flora and fauna relevant to the alternative proposal

The alternative proposal is a 'do nothing' option. There are no impacts to flora and fauna from this proposal.

8.24 What are the proposed measures for any alternative action to avoid or reduce the impact?

Not applicable. No measures are required as the alternative action is to do nothing.

8.25 Do you have another alternative?

☐ Yes ☑ No

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 9

Person proposing the action

9.1.1 Is the person proposing the action a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	IDEMITSU AUSTRALIA RESOURCES PTY LTD
Business name	
ABN	45010236272
ACN	010236272
Business address	Level 9, 175 Eagle St, Brisbane City, 4000, QLD, Australia
Postal address	
Main Phone number	(07) 3222 5620
Fax	
Primary email address	Daniel.Yates@idemitsu.com.au
Secondary email address	

9.1.2 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

☐ Small business
☑ Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations *

☐ Yes ☑ No

9.1.3 Contact

First name	Daniel
Last name	Yates
Job title	Group Manager Health, Safety and Environment
Phone	(07) 3222 5620
Mobile	
Fax	
Email	Daniel.Yates@idemitsu.com.au
Primary address	Level 9, 175 Eagle St, Brisbane City, 4000, QLD, Australia
Address	

Declaration: Person proposing the action

I, Daniel Yates on behalf of Idemitsu Australia Resources Pty Ltd, Bluff Coal Limited and Bowen Investment (Australia) Pty Ltd, declare th to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action o behalf or for the benefit of any other person or entity.

Signature: ..... Date: 02/06/2020

I, Idemitsu Australia Resources Pty Ltd, Bluff Coal Limited and Bowen Investment (Australia) Pty Ltd, the perso proposing the action, consent to the designation of Shane Wright of Idemitsu Australia Resources Pty Ltd as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: ..... Date: 02/06/2020

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Proposed designated proponent

9.2.1 Is the proposed designated proponent a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	IDEMITSU AUSTRALIA RESOURCES PTY LTD
Business name	
ABN	45010236272
ACN	010236272
Business address	Level 9, 175 Eagle St, Brisbane City, 4000, QLD, Australia
Postal address	
Main Phone number	(07) 3222 5689
Fax	
Primary email address	Shane.Wright@Idemitsu.com.au
Secondary email address	

9.2.2 Contact

First name	Shane
Last name	Wright
Job title	Executive General Manager Operations and Development
Phone	(07) 3222 5689
Mobile	
Fax	
Email	Shane.Wright@Idemitsu.com.au
Primary address	Level 9, 175 Eagle St, Brisbane City, 4000, QLD, Australia
Address	

Declaration: Proposed Designated Proponent

I, Shane Wright of Idemitsu Australia Resources Pty. Ltd. **,the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.**

Signature: ..... **Date:** 11/5/2020

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Referring party (person preparing the information)

9.3.1 Is the referring party (person preparing the information) a member of an organisation?

☑ Yes ☐ No

Organisation

Organisation name	AECOM AUSTRALIA PTY LTD
Business name	
ABN	20093846925
ACN	
Business address	Level 8, 540 Wickham St, Fortitude Valley, 4006, QLD, Australia
Postal address	
Main Phone number	(07) 3553 2000
Fax	
Primary email address	Jared.Brook@aecom.com
Secondary email address	

9.3.2 Contact

First name	Jared
Last name	Brook
Job title	Principal Environmental Consultant
Phone	0435716466
Mobile	
Fax	
Email	Jared.Brook@aecom.com
Primary address	Level 8, 540 Wickham St, Fortitude Valley, 4006, QLD, Australia
Address	

Declaration: Referring party (person preparing the information)

I, JARED BROOK **, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.**

Signature: ..... **Date:** 6/05/2020

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Appendix A

Attachment

Document Type	File Name
action_area_images	60603371 Ensham EPBC Referral Report_Rev 00_Optimized.pdf
govt_approval_conditions	Environmental Authority EMPL00732813.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 1.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 2.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 3.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 4.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 5.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 6.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 7.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 8.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 9.pdf
supporting_tech_reports	665.ENS02.10000-R01-01_Optimized_Part 10.pdf
flora_fauna_investigation	60603371 Ensham Flora and fauna survey locations_Optimized.pdf
impact_reduction_docs	60603371- Appendix C-3 MNES-00_Optimized_Part 1.pdf
impact_reduction_docs	60603371- Appendix C-3 MNES-00_Optimized_Part 2.pdf
impact_reduction_docs	60603371- Appendix C-3 MNES-00_Optimized_Part 3.pdf
impact_reduction_docs	Ensham19 - R12 Revision 00.pdf
impact_reduction_docs	EPBC Self Assessment Report Rev 00.pdf
corp_env_policy_docs	IMS-PS002 160621 Environmental Management Policy.pdf

Appendix B

Coordinates

Area 1
-23.433870406497,148.48672019642
-23.455210162558,148.44565525896
-23.44207795369,148.45613329795
-23.441726081983,148.45666942347
-23.434548366328,148.46234001413
-23.434428019766,148.46316092386
-23.425727287137,148.47005466345
-23.433870406497,148.48672019642

Area 2
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-23.514075870617,148.46431949505
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-23.505100645491,148.45839656867
-23.502488070264,148.45936574146
-23.502154705939,148.45986342101

Area 3
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-23.446591109214,148.42094481725
-23.431955861269,148.43267258198
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-23.425216664247,148.46933332915
-23.425743624054,148.46983932448
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