Cundaline and Callawa Mining Operations

BHP Billiton Iron Ore

Report and recommendations
of the Environmental Protection Authority

Environmental Protection Authority
Perth, Western Australia
Report 1338
September 2009

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
	Referral received	**0**
	Intention to set EPS Level of Assessment advertised (no appeals)	**4**
	Proponent's Final EPS document received by EPA	**38**
	EPA report to the Minister for Environment	**6**

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Appeals Close: 13/10/09

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1. Introduction and background

This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for Environment on the proposal to develop the Cundaline and Callawa deposits using new and existing Goldsworthy infrastructure by BHP Billiton Iron Ore.

Section 44 of the *Environmental Protection Act 1986* (EP Act) requires the EPA to report to the Minister for Environment on the outcome of its assessment of a proposal. The report must set out:

- the key environmental factors identified in the course of the assessment; and
- the EPA's recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may include in the report any other advice and recommendations as it sees fit.

The EPA was advised of the proposal in September 2008. Based on the information provided, the EPA considered that while the proposal had the potential to have an effect on the environment, the proposal, as described, could be managed to meet the EPA's environmental objectives. Consequently it was notified in *The West Australian* newspaper on 20 October 2008 that, subject to preparation of a suitable Environmental Protection Statement (EPS) document, the EPA intended to set the level of assessment at EPS.

The proponent has prepared the EPS document which accompanies this report (*BHP Billiton, 2009*). The EPS document sets out the details of the proposal, potential environmental impacts and appropriate commitments to manage those impacts. The EPA notes that the proponent has consulted with relevant stakeholders.

The EPA considers that the proposal can be managed to meet the EPA's environmental objectives, subject to the EPA's recommended conditions being made legally binding.

The EPA therefore has determined, under Section 40 of the EP Act, that the level of assessment for the proposal is EPS, and this report provides the EPA advice and recommendations in accordance with Section 44 of the EP Act.

2. The proposal

The proposal is described in detail in the proponent's EPS document (*BHP Billiton, 2009*). The current Goldsworthy Operations are centred at Yarrie, 200 kilometres east of Port Hedland. (Figure 1). The proposal represents a continuation of operations at Goldsworthy and would utilise existing infrastructure at Yarrie. The proposal involves open pit mining above the water table at the Cundaline pits and open pit mining above and below the water table at the Callawa Pits. The location of the Cundaline and Callawa pits in relation to existing Goldsworthy operations is demonstrated in Figure 2.

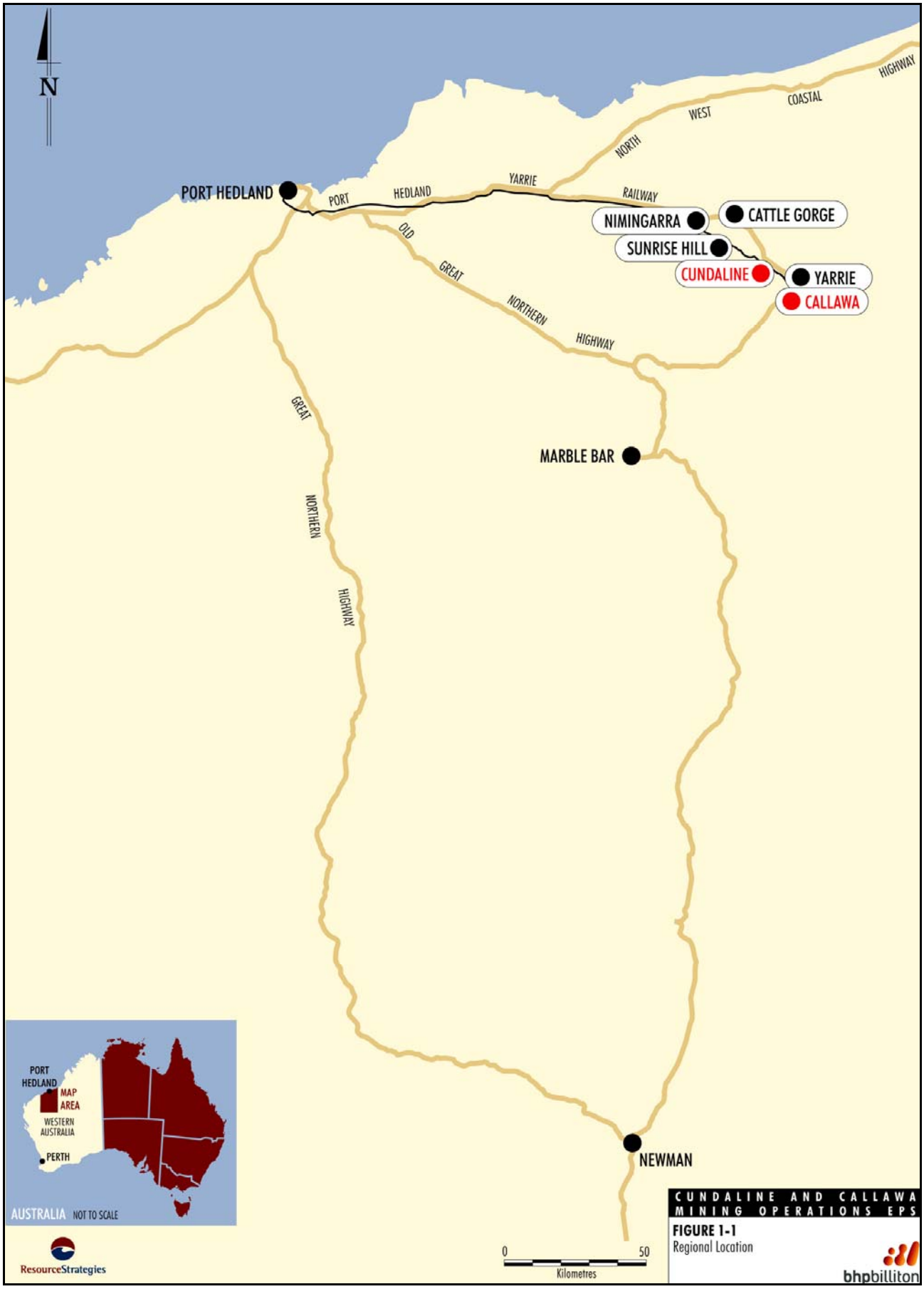

Figure 1: Project location

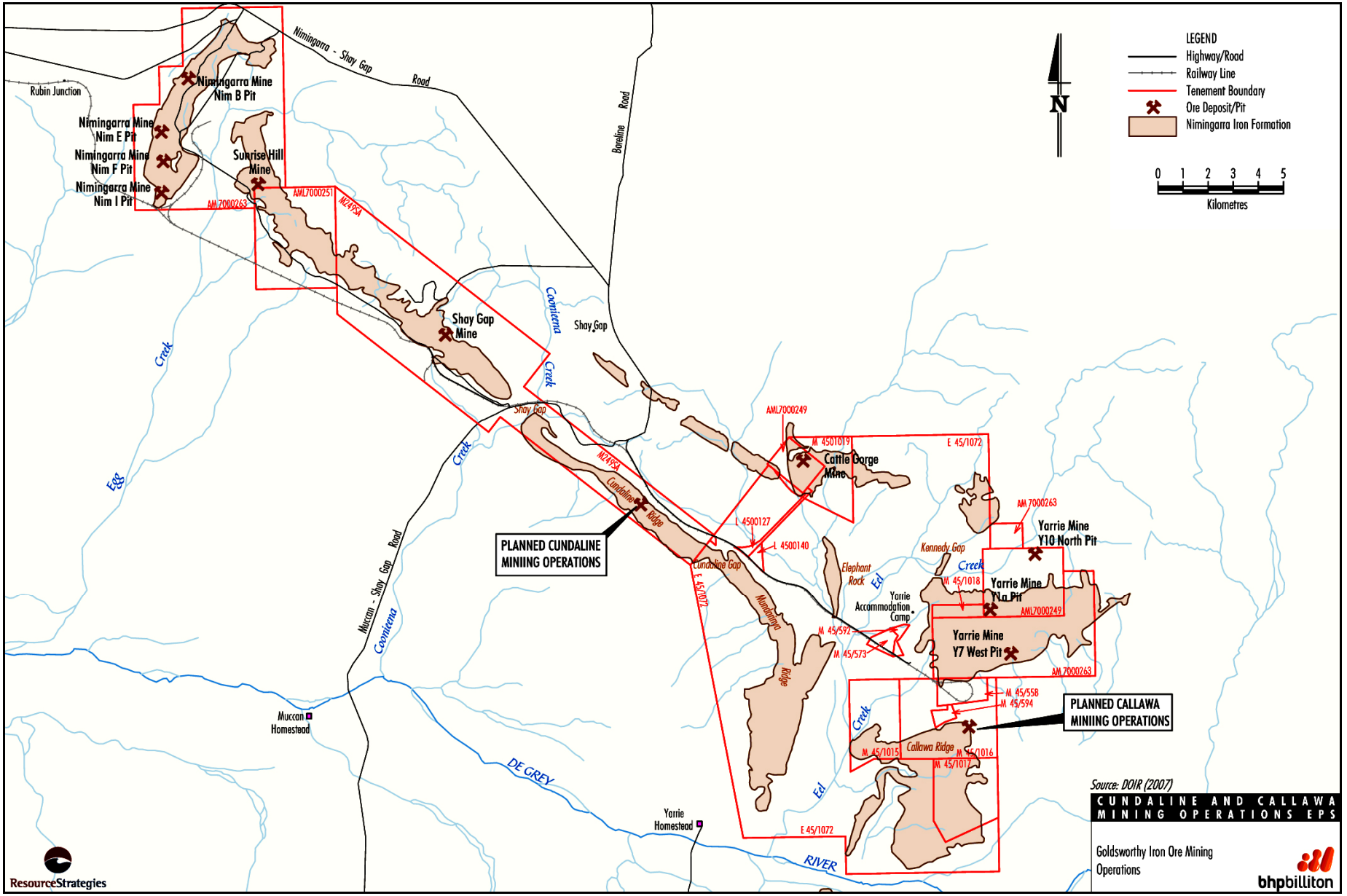

Figure 2: Layout of Goldsworthy iron ore operations

The key components of the proposal are summarised in Table 1 below:

Table 1: Summary of key proposal characteristics

Element	Description
Mine life	Up to six years
Production	Up to 5 million tonnes per annum.
Total overburden	Approximately 14.5Mt (Cundaline) and 15.5Mt (Callawa)
Area of disturbance	Approximately 500 hectares.
Area of pits	Cundaline pits – Approximately 125 hectares. Callawa pits – Approximately16 hectares.
Water demand	Up to 1.5 ML/day.
Water supply	Dewatering from Callawa deposit and continuing abstraction from Shay Gap well field to meet operational demands.
Off-site transport of ore	Existing rail facilities.
Overburden storage	Out of pit Overburden Storage Areas to the north of Cundaline and east of Callawa, in pit placement of overburden at Callawa to 5m above the water table.
Mine-related infrastructure	Use of existing Goldsworthy processing facilities, administrative facilities, workshops, storage areas and accommodation facilities. Construction of offices, toilet facilities, crib rooms and turkey's nest dams.
Final pit voids	Backfilled to at least five meters above the maximum measured pre-mining water table level of 227m AHD

The potential impacts of the proposal are discussed by the proponent in the EPS document (*BHP Billiton, 2009*).

3. Consultation

During the preparation of the EPS, the proponent has undertaken consultation with government agencies and key stakeholders.

The main issues raised in consultation related to:

- loss of subterranean fauna species, particularly troglofauna;
- potential impacts to terrestrial fauna; and
- mine closure and rehabilitation.

The agencies, groups and organisations consulted, the comments received and the proponent's response are detailed in Table 1-2 of the EPS document. (BHP Billiton, 2009)

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development.

4. Key environmental factors

It is the EPA's opinion that the following key environmental factors relevant to the proposal require evaluation in this report:

(a) Fauna; and

(b) Mine Closure and Rehabilitation.

The key environmental factors are discussed in Sections 4.1 – 4.2. The description of each factor shows why it is relevant to the proposal and how it will be affected by the proposal. The assessment of each factor is where the EPA decides whether or not a proposal meets the environmental objective set for that factor.

The proposal involves dewatering of the Callawa pits. Drawdown would be minimal (less than 0.5m at a distance of 250m from the edge of the pit). There are no groundwater dependant vegetation within the proposal area. The EPA considers that groundwater is not a key factor in this assessment.

4.1 Fauna

Description

Impact to fauna associated with the proposal would primarily be from loss or modification of habitat. The more mobile fauna are expected to move into adjacent areas of similar habitat, however some losses of less mobile individuals are expected. Fauna may also be impacted by light, noise, and increases in introduced fauna.

Terrestrial Fauna

Surveys for Terrestrial fauna have been undertaken by the proponent in accordance with relevant guidance statements. No terrestrial Short Range Endemic (SRE) species were identified during the surveys. Given these results SRE fauna are not considered to be at risk from this proposal.

Four threatened species, the Northern Quoll, Pilbara Leaf-nosed Bat, Peregrine Falcon and Pilbara Olive Python have been recorded in the Cundaline and Callawa areas. An additional threatened species, the Mulgara, has been recorded in surrounding areas. Priority Species recorded in the proposal area include four mammal species and five bird species. These species are generally mobile and likely to move away from disturbed areas.

The species of conservation significance recorded during the survey are unlikely to be significantly impacted, due to the relatively small area of habitat to be cleared. Although no habitat of this type exists in conservation reserves or proposed conservation areas, extensive areas of suitable habitat for each species exist adjacent to the proposal areas. There are no barriers that would prevent fauna from moving into these adjacent areas.

The terrestrial fauna assemblage recorded is similar to other regional sites. A qualitative assessment of habitat type was conducted in 2008. The survey indicated that all habitats

present over the proposal area are widely represented throughout the region. (Outback Ecology, 2008)

The proponent has proposed management measures to minimise impacts to threatened and priority fauna species. These include:

- Minimising land disturbance;
- Recording potential areas of habitat and avoiding where possible;
- Progressive rehabilitation;
- Demarcation and retention of mature trees to provide habitat;
- Providing induction programmes and specific training for handling of injured fauna;
- Capturing and relocating Pilbara Olive python using a qualified handler if the species is found in or near proposed disturbance areas;
- Implementing specific management measures for bat species, including monitoring and changes to blasting schedules if required, 400m buffer zones to be established around known caves, and changes to lighting where monitoring indicates that existing lighting is impacting bats; and
- Controlling feral animals by destroying burrows, fencing, species specific baiting and capture as required.

Subterranean Fauna

Surveys for subterranean fauna have been undertaken by the proponent in accordance with EPA Guidance Statement 54a. The surveys identified a moderate diversity of stygofauna, however all species which were located inside the deposit have also been located outside of the proposed disturbance area. Stygofauna populations are not considered to be at risk from this proposal as habitat areas exist outside the proposal area.

Troglofauna surveys were carried out in the project area from December 2007 to April 2008. 309 samples were collected from 226 bores, including 190 samples from the proposed in-pit areas and 119 samples from out of pit areas. Sampling was carried out in accordance with Guidance Statement 54a (EPA, 2007)

Fifty six percent of the species collected occur on both the Cundaline and Callawa ridges. The study indicates that the troglofauna communities in the project area are likely to be continuous across the Nimingarra formation, and are unlikely to be restricted to the area of disturbance associated with the proposal.

During the initial sampling effort, six species were located only inside the proposed pit areas. Therefore additional targeted Troglofauna sampling was carried out between May and June 2009 to locate these species outside the proposed disturbance area. Two of the species were located outside the proposed disturbance area. The results of the additional sampling support the proponents conclusion that troglofauna communities in the project area are likely to be continuous across the Nimingarra formation

The proponent also carried out a survey of troglofauna habitat in the proposal area. This Troglofauna habitat in the proposal area is not confined to the disturbance area. Habitat fragmentation is unlikely to be a concern at Callawa Ridge, as the proposed pit occupies a small corner of this landform. Habitat fragmentation is more likely at Cundaline Ridge, however habitat continuity is likely to be retained in the adjacent sections of unmined ridge.

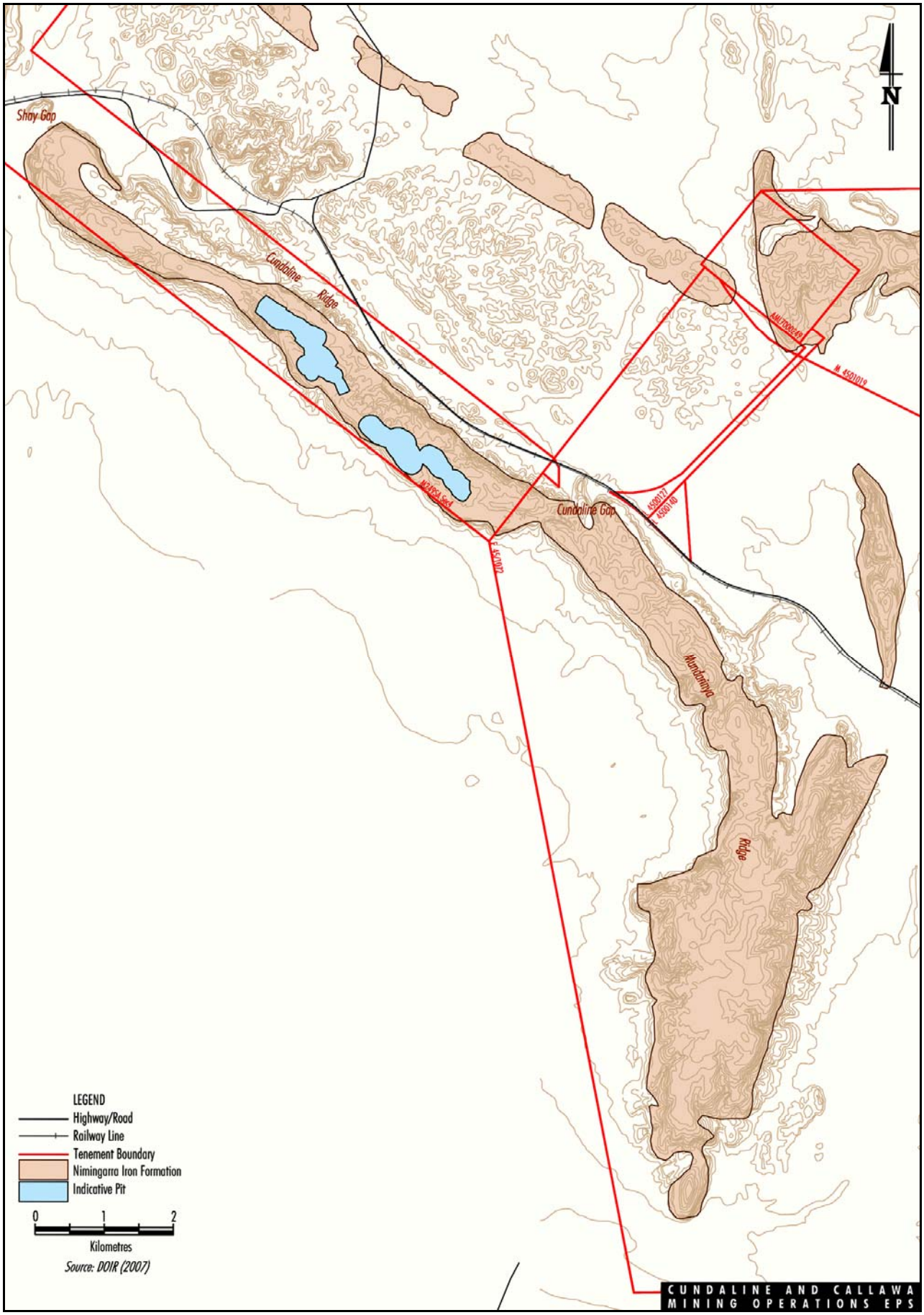

Figure 3: Extent of mining at the Callawa deposit in relation to troglofauna habitat

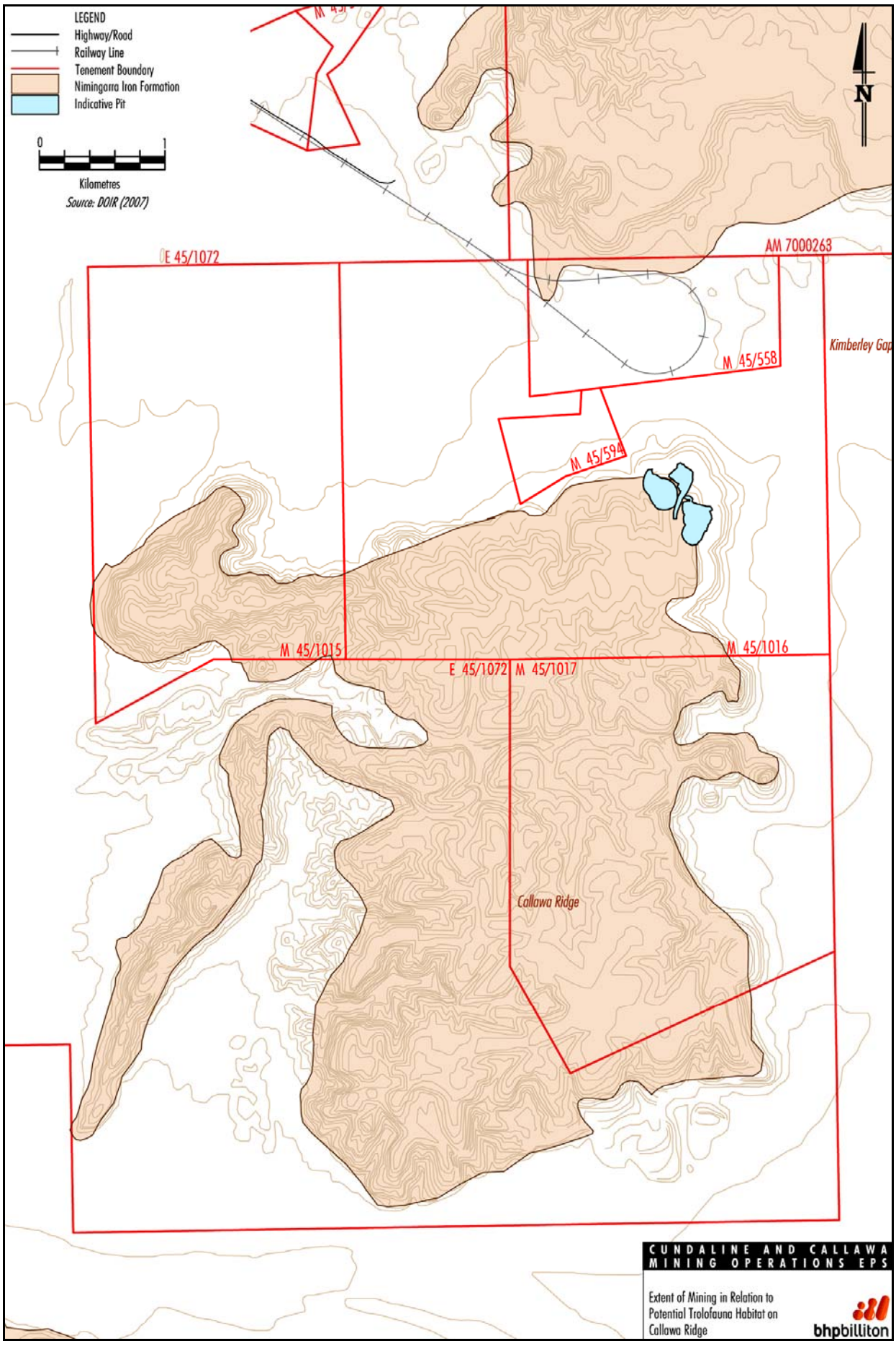

Figure 4: Extent of mining at the Cundaline deposit in relation to troglofauna habitat

Figures 3 and 4 indicate the proposed pit areas in relation to the identified troglofauna habitat on the Callawa and Cundaline ridge formations.

The DEC advises that the risk of extinction to any troglofauna species is acceptably low due to the combination of wider occurrence of suitable geology and overlap in species between deposits.

Assessment

The EPA's environmental objective for this factor is to maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge.

The EPA notes that the proposal has the potential to impact on fauna in the project area through loss or modification of habitat.

Terrestrial Fauna

The terrestrial fauna habitats which would be directly impacted by the proposal are widely represented throughout the region. The EPA considers that loss of habitat or nesting areas is unlikely to impact fauna populations in the areas, although some displacement of individuals may occur. The EPA notes that significant fauna species which may occur in the disturbance area are generally mobile and likely to move away from disturbed areas to areas of habitat adjacent to the proposal.

Specific management actions for bat species would be implemented by the proponent, including a buffer between mining activities and known roosting sites, restriction of blasting activities, additional monitoring to detect impacts to bat behaviours, and changes to lighting strategies where required. The EPA notes that monitoring of bat populations near the existing Goldsworthy operations indicates that these management measures appear to have been successful to date.

The EPA considers that proposed management strategies for minimising clearing and avoidance of significant fauna habitat where possible are environmentally acceptable.

Subterranean fauna

Potential troglofauna habitat on the Cundaline and Callawa ridges is not limited to the area of disturbance. The EPA notes that the pit at Cundaline would only impact approximately 6% of the available troglofauna habitat on the ridge. The pit at Callawa would impact approximately 1% of available troglofauna habitat.

The EPA considers that the results of the combined troglofauna sampling program support the habitat analysis, and that the troglofauna communities in the project area are continuous across the Nimingarra formation. Species distributions are therefore unlikely to be restricted to the area of disturbance associated with the proposal.

The EPA considers that risk of impacts to troglofauna diversity as a result of the proposal is environmentally acceptable.

Summary

Having particular regard to the:

- absence of SRE fauna in the area;
- wider distribution of fauna habitat in the region; and

- proponent's proposed management of terrestrial fauna;

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objective for this factor.

4.2 Mine Closure and rehabilitation

Description

The expected life of the proposal is up to six years. The post-mine land use would be determined in consultation with key stakeholders during the life of the mine, and is likely to be returned to the current land use of low intensity cattle grazing.

The proponent has consulted with stakeholders in developing Guiding Closure Principles for the Goldsworthy Operations. These principles would be applied to this proposal, and are outlined in the Goldsworthy Decommissioning and Rehabilitation plan (DRP) The DRP is intended to be periodically reviewed and updated in consultation with stakeholders throughout the life of the proposal.

Mine voids would be backfilled to at least 5m above the pre-mining watertable. Overburden storage would be designed to be sympathetic with regional landforms. The Guiding Closure Principles outlined in the EPS and the DRP include:

- avoiding significant, physical offsite impacts;
- establishing vegetation cover to be self-sustaining and showing progression towards surrounding undisturbed vegetation; and
- establishing stable post-mining landforms.

Land disturbance associated with the proposal would be approximately 500ha. Detailed rehabilitation methods for each type of disturbed land in the proposal area (i.e., haul roads, Overburden Storage Areas, backfilled pits, infrastructure areas) are outlined in the DRP. The proponent would develop targets for rehabilitation performance based on Ecosystems Function Analysis (EFA), a CSIRO developed method used to provide indicators of rehabilitation success. Targets would be developed by assessing the EFA values of analogue sites and comparing the average values to the rehabilitated areas.

Rehabilitated areas would be monitored and maintained until completion criteria are achieved as determined in the final DRP and the mine leases relinquished. The progress and performance of rehabilitation activities would continue to be reported in the proponent's Annual Environmental Report.

Assessment

The EPA's environmental objectives for this factor are to ensure that;

- closure and rehabilitation achieves stable, non-polluting and functioning landforms which are consistent with the surrounding landscape and other environmental values;
- self-sustaining native vegetation communities are returned after mining, which, in species composition and ecological function are as close as possible to naturally occurring analogue sites; and
- soil and groundwater contamination does not pose a long term risk to ecosystem health or beneficial use of surface water bodies and groundwater.

The EPA considers that the proponent has developed a comprehensive framework for rehabilitation and mine closure to address the issue of returning disturbed vegetation and landforms to pre-mining conditions, however, in line with current practices the EPA has recommended a condition to ensure that its environmental objectives are met.

The EPA considers that mine closure and rehabilitation can be managed in an environmentally acceptable manner subject to implementation of the proposed condition.

Summary

Having particular regard to:

- the proponent's management procedures; and
- the EPA's recommended condition 6,

it is the EPA's opinion that the proposal can be managed to meet the EPA's environmental objectives for this factor.

4.3 Environmental principles

In preparing this report and recommendations, the EPA has had regard for the object and principles contained in s4A of the *Environmental Protection Act (1986).* Environmental principles considered during this assessment include:

- The precautionary principle: and
- The principle of the conservation of biological diversity and ecological integrity.

5. Conditions

Having considered the information provided in this report, the EPA has developed a set of conditions that the EPA recommends be imposed if the proposal by BHP Billiton Iron Ore to develop the Cundaline and Callawa iron ore deposits is approved for implementation. These conditions are presented in Appendix 2.

6. Conclusions

The EPA has considered the proposal by BHP Billiton Iron Ore to develop the Cundaline and Callawa iron ore deposits.

The EPA notes that the proposal involves some dewatering from the Callawa pits. Drawdown would be minimal (less than 0.5m at a distance of 250m from the edge of the pit). There are no groundwater dependant vegetation within the proposal area. The EPA therefore considers that groundwater is not a key factor in this assessment.

Although no habitat for Terrestrial fauna of the type present at the proposal site exists in conservation reserves or proposed conservation areas, extensive areas of suitable habitat for each species exist adjacent to the proposal areas.

The EPA notes that potential troglofauna habitat on the Cundaline and Callawa ridges is not limited to the area of disturbance. The pit at Cundaline would only impact approximately 6% of the available troglofauna habitat on the ridge. The pit at Callawa would impact approximately 1% of available troglofauna habitat.

The EPA considers that the results of the combined troglofauna sampling program support the habitat analysis, and demonstrate that the troglofauna communities in the project area are continuous across the Nimingarra formation. Species distributions are therefore unlikely to be restricted to the area of disturbance associated with the proposal. The EPA considers that risk of impacts to troglofauna diversity as a result of the proposal is environmentally acceptable.

The EPA considers that the proponent has developed a comprehensive framework for rehabilitation and closure to address the issue of returning disturbed vegetation and landforms to pre-mining conditions, however, in line with current practices the EPA has recommended a condition to ensure that its environmental objectives are met.

The EPA has concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of their commitments and the recommended conditions set out in Appendix 2.

7. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the proposal being assessed is for the development of the Cundaline and Callawa deposits using new and existing Goldsworthy infrastructure;
2. That the Minister considers the report on the key environmental factors (Fauna and Mine Closure and Rehabilitation) as set out in Section 4;
3. That the Minister notes that the EPA has concluded that the proposal can be managed to meet the EPA's environmental objectives, provided there is satisfactory implementation by the proponent of the recommended conditions set out in Appendix 2, including the proponent's commitments; and
4. That the Minister imposes the conditions and procedures recommended in Appendix 2 of this report.

Appendix 1

References

BHP Billiton (2009). *Cundaline and Callawa mining Operations – Environmental protection Statement* August 2009, Perth, WA.

Subterranean Ecology (2009b) *Callawa and Cundaline Iron ore Mining Operations Additional Targeted Troglofauna Surveys.*

Subterranean Ecology (2008a) *Stygofauna Survey Callawa and Cundaline Deposits.* Subterranean Ecology, North Beach

Outback Ecology (2008) *Goldsworthy Iron Ore Mining Operations – Targeted fauna assessment.* Report Prepared for BHP Billiton Iron ore

Environmental Protection Authority (2004e) *Guidance for the assessment of Environmental Factors Statement No 51 – Terrestrial Fauna surveys for Environmental Impact assessment in Western Australia* Western Australia

Environmental Protection Authority (2007b) *Guidance for the assessment of Environmental Factors Statement No 54a – Sampling methods and Survey considerations for Subterranean Fauna in Western Australia.* Western Australia

Appendix 2

Recommended Environmental Conditions

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE *ENVIRONMENTAL PROTECTION ACT 1986)*

CUNDALINE AND CALLAWA MINING OPERATIONS

Proposal: BHP Billiton Iron Ore is proposing to develop the Cundaline and Callawa Iron Ore deposits located near the existing Goldsworthy operations, 200km east of Port Hedland in the Pilbara Region. New and existing Goldsworthy Infrastructure would be utilised.

Proponent: BHP Billiton Iron Ore Pty Ltd

Proponent Address: St Georges Square, 225 St Georges Tce, Perth WA 6000

Assessment Number: 1812

Previous Assessment Numbers: Nil

Previous Statement Numbers: Nil

Report of the Environmental Protection Authority: **1338**

Previous Reports of the Environmental Protection Authority: Nil

The proposal referred to in report 1338 of the Environmental Protection Authority may be implemented. The implementation of that proposal is subject to the following conditions and procedures:

1 Proposal Implementation

1-1 The proponent shall implement the proposal as assessed by the Environmental Protection Authority and described in schedule 1 of this statement subject to the conditions and procedures of this statement.

2 Proponent Nomination and Contact Details

2-1 The proponent for the time being nominated by the Minister for Environment under sections 38(6) or 38(7) of the *Environmental Protection Act 1986* is responsible for the implementation of the proposal.

2-2 The proponent shall notify the Chief Executive Officer (CEO) of the Department of Environment and Conservation of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change.

3 Time Limit of Authorisation

3-1 The authorisation to implement the proposal provided for in this statement shall lapse and be void within five years after the date of this statement if the proposal to which this statement relates is not substantially commenced.

3-2 The proponent shall provide the CEO of the Department of Environment and Conservation with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement.

4 Compliance Reporting

4-1 The proponent shall submit to the CEO of the Department of Environment and Conservation environmental compliance reports annually reporting on the previous twelve-month period.

4-2 The environmental compliance reports shall address each element of an audit program approved by the Manager, Proposal Implementation Monitoring Section of the Department of Environment and Conservation and shall be prepared and submitted in a format acceptable to the CEO of the Department of Environment and Conservation.

4-3 The environmental compliance reports shall:

1 be endorsed by signature of the proponent's General Manager – Iron Ore or a person, approved in writing by the CEO of the Department of Environment and Conservation, delegated to sign on behalf of the proponent's General Manager – Iron Ore;

2 state whether the proponent has complied with each condition and procedure contained in this statement;

3 provide verifiable evidence of compliance with each condition and procedure contained in this statement;

4 provide verifiable evidence of conformance with each key action contained in any environmental management plan or program required by this statement;

5 identify all non-compliances and non-conformances and describe the corrective and preventative actions taken in relation to each non-compliance or non-conformance;

6 review the effectiveness of all corrective and preventative actions taken; and

7 describe the state of implementation of the proposal.

4-4 The proponent shall make the environmental compliance reports required by condition 4-1 publicly available in a manner approved by the CEO of the Department of Environment and Conservation.

5 Performance Review and Reporting

5-1 The proponent shall submit to the CEO of the Department of Environment and Conservation Performance Review Reports at the conclusion of the first, second, third and fifth years after the commencement of productive mining and then, at such intervals as the CEO of the Department of Environment and Conservation may regard as reasonable, which addresses:

1 the environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to management of the major risks and impacts;

2 the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and

3 improvements gained in environmental management which could be applied to this and other similar projects.

6 Mine Closure and Rehabilitation

6-1 Within 1 year following the cessation of productive ore mining, the proponent shall commence rehabilitation of waste dumps and areas disturbed through implementation of the proposal.

6-2 The proponent shall ensure rehabilitation required under Condition 6-1 achieves the following outcomes within 5 years following the cessation of productive mining:

1. The waste dumps shall not cause pollution and shall be constructed so that their final shape, size, stability, and ability to support local native vegetation are comparable to similar nearby natural landforms.
2. Final pit voids shall be backfilled to at least five metres above the maximum measured pre-mining water table level of 227m AHD
3. Areas to be rehabilitated under Condition 6-1 shall be rehabilitated with vegetation composed of native plant species of local provenance, where local

provenance is defined as seed or plant material collected within 10 kilometres of the proposal.

4. The percentage cover of living native vegetation and species diversity in areas to be rehabilitated under Condition 6-1 shall meet targets identified by the proponent in accordance with the Decommissioning and Rehabilitation Plan, using the average values of suitable reference sites chosen in consultation with the Department of Environment and Conservation.

5. The percentage of area covered by weeds (including both declared weeds and environmental weeds) shall not exceed that identified in baseline monitoring undertaken prior to commencement of operations, or exceed that existent on comparable, nearby land which has not been disturbed during implementation of the proposal, whichever is less.

6. No new species of weeds (including both declared weeds and environmental weeds) shall be introduced into the area as a result of the implementation of the proposal.

7-3 The proponent shall continue rehabilitation activities for a minimum of 5 years and until such time as the requirements of condition 7-1 and 7-2 are met to the satisfaction of the Chief Executive Officer of the Department of Environment and Conservation on advice of the Chief Executive Officer of the Department of Mines and Petroleum.

7-4 The proponent shall review, and as necessary in accordance with current best practice, revise the Decommissioning and Rehabilitation Plan included at Appendix B of the Environmental Protection Statement at intervals not exceeding 2 years, to the satisfaction of the Chief Executive Officer of the Department of Environment and Conservation on advice of the Chief Executor Officer of the Department of Mines and Petroleum.

7-5 The proponent shall implement the Decommissioning and Rehabilitation plan included at Appendix B of the Environmental Protection Statement or the revision approved under Condition 6-3 to the satisfaction of the Chief Executive Officer of the Department of Environment and Conservation on advice of the Chief Executor Officer of the Department of Mines and Petroleum.

Procedures

1. Where a condition states “on advice of the Environmental Protection Authority”, the Environmental Protection Authority will provide that advice to the Department of Conservation for the preparation of written notice to the proponent.
2. The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment and Conservation.
3. The Minister for Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment and Conservation over the fulfilment of the requirements of the conditions.

4. Where a condition lists advisory bodies, it is expected that the proponent will obtain the advice of those listed as part of its compliance reporting to the Department of Environment and Conservation.
5. The proponent is required to apply for a Works Approval and Licence for this project under the provisions of part V of the *Environmental Protection Act 1986.*

Schedule 1

The Proposal (Assessment No. 1812)

General Description

The proposal is to develop the Cundaline and Callawa Iron ore deposits, using new infrastructure and infrastructure from the existing Goldsworthy operations.

The proposal is described in the following document – BHP Billiton Iron Ore Pty Ltd, Cundaline and Callawa Mining Operations, Environmental Protection statement (2009).

Summary Description

A summary of the key proposal characteristics is presented in Table 1.

7.1.1 Table 1: Summary of key proposal characteristics

Element	Description
Mine life	Up to six years
Production	Up to 5 million tonnes per annum.
Total overburden	Approximately 14.5Mt (Cundaline) and 15.5Mt (Callawa)
Area of disturbance	No more than 500 hectares.
Area of pits	Cundaline pits – 125 hectares. Callawa pits – 16 hectares.
Water demand	Up to 1.5 ML/day.
Water supply	Dewatering from Callawa deposit and continuing abstraction from Shay Gap well field to meet operational demands.
Off-site transport of ore	Existing rail facilities.
Overburden storage	Out of pit Overburden Storage Areas to the north of Cundaline and east of Callawa, in pit placement of overburden at Callawa to 5m above the water table level.
Infrastructure	Use of existing Goldsworthy processing facilities, administrative facilities, workshops, storage areas and accommodation facilities. Construction of offices, toilet facilities, crib rooms and turkey's nest dams.
Final pit voids	Backfilled to 5 metres above the maximum measured pre-mining water table level of 227m AHD

Figure:

Layout of Goldsworthy iron ore operations. (See figure 2, page 3, above).