



**Statement of Reasons for Approval under the *Environment Protection and Biodiversity Conservation Act 1999***

I, MELISSA PRICE, the Minister for the Environment, provide the following statement of reasons for my decision of 10 April 2019, under subsection 130 (1) and section 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), to approve the proposed action by Cameco Australia Pty Ltd to develop Yeelirrie open cut uranium ore mine, ore processing plant and associated infrastructure in the Shire of Wiluna, 500 kilometres north of Kalgoorlie, Western Australia. This includes the mining and processing of uranium ore, sourcing and supply of water and electricity, upgrades to roads, accommodation of a workforce and transport of uranium oxide concentrate by road from the mine to Kalgoorlie (EPBC 2009/4906).

**Legislation**

1. Relevant legislation is set out at Annexure A.

**Background**

*The proposed action*

2. The proposed action is the development of the Yeelirrie open cut uranium ore mine, ore processing plant and associated infrastructure in the Shire of Wiluna, located approximately 420 kilometres (km) north of Kalgoorlie, WA. As part of the proposed action, mining will be undertaken in stages using conventional open pit mining techniques. A maximum of 7,500 tonnes per annum of uranium oxide concentrate will be produced. The expected life of the mine is 15 years. The proposed action includes the mining and processing of uranium ore, sourcing and use of water and electricity, upgrades to roads, workforce accommodation facilities, stockpile and laydown areas, evaporation pond and transport of uranium oxide concentrate by road from the mine to Kalgoorlie, Western Australia.

*Referral Decision, Assessment Approach Change of Proponent and Variation to proposal<sup>1</sup>*

3. On 21 May 2009, BHP Billiton Yeelirrie Development Company Pty Ltd (BHP Billiton) referred the proposed action to the Department. The proposed action was determined by a delegate for the Minister for the Environment to be a controlled action under the EPBC Act on 19 June 2009 on the basis that it was likely to have a significant impact on listed threatened species and communities (ss 18 and 18A), listed migratory species (ss 20 and 20A), and on the basis that the proponent was a constitutional corporation, the action is a nuclear action and the nuclear action was likely to have a significant impact on the environment (ss 21 and 22A).
4. An assessment approach decision was not made under section 87(4) of the EPBC Act at the time of the referral decision as the Western Australia Environmental Protection Authority (WA EPA) advised the Department that the bilateral agreement that was in force at the time

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<sup>1</sup> Referral decision notice, assessment approach notice, change of proponent and variation to proposal notice for EPBC 2009/4906 Yeelirrie Uranium Mine cited in this document is available on the Department of the Environment website at: <http://epbcnotices.environment.gov.au/referralslist/>

(the pre-2012 bilateral agreement) was applicable, and the proposed action described in WA referral assessment no. 1788 could be assessed by the WA EPA in a manner that was consistent with the bilateral agreement.

5. On 2 January 2013, Cameco Australia Pty Ltd (the proponent) notified a delegate for the Minister for the Environment of a change to the person proposing to take the action, as they had acquired the proposed action from BHP Billiton. BHP Billiton also notified a delegate for the Minister for the Environment on the same date, confirming the change. On 21 January 2013, a delegate for the Minister for the Environment published the change of proponent notice.
6. On 12 November 2014, the original proposal referred to the WA EPA (assessment 1788) was terminated by the proponent and a new referral was submitted (assessment 2032) and assessed by the WA EPA through a public environmental review under the *Environmental Protection Act 1986* (EP Act).
7. On 17 November 2014, the proponent submitted a request to the then Minister for the Environment under section 156A(1) of the EPBC Act to vary the proposed action to increase the annual rate of mining and production of uranium ore concentrate. On 5 December 2014, a delegate for the Minister for the Environment decided to accept the varied proposal under section 156B(1) and published the variation notice.
8. In 2015 a new bilateral agreement was made between the Commonwealth and WA Government under section 45 of the EPBC Act (the current bilateral agreement). The current bilateral agreement did not include actions that were assessed by WA referral assessment no. 1788 as declared classes of actions that do not require assessment under Part 8 of the EPBC Act (due to the termination of assessment 1788). In addition, the current bilateral agreement does not allow for projects that were being assessed under the pre-2012 bilateral agreement to transition to the current bilateral agreement. Accordingly, the proposed action was no longer able to be assessed under a bilateral agreement, and required an assessment approach decision under section 87 of the EPBC Act.
9. On 12 March 2015, a delegate for the Minister for the Environment decided under section 87(1)(a) of the EPBC Act that the proposed action would be assessed by an accredited assessment process, being Public Environment Review (PER) under the EP Act. A correction notice was issued on 17 March 2015, as the original decision notice did not state the assessment approach, which is a requirement for accredited assessment decisions under section 91(2) of the EPBC Act.

*Invitation to comment on Public Environment Review (PER)*<sup>2</sup>

10. In accordance with the EP Act, on 21 September 2015, the public comment period on the PER commenced for a period of 12 weeks, ending on 14 December 2015. A total of nine (9)

<sup>2</sup> Information related to the public comments on the Public Environment Report cited in this document is available on the WA EPA website at: <http://www.epa.wa.gov.au/proposals/yeelirrie-uranium-project>

government agency submissions, 169 individual submissions and 2946 pro forma submissions were received by the WA EPA. Issues raised included:

- potential impacts to subterranean fauna species, noting the potential loss of species
- potential impacts on the Rare Flora *Atriplex yeelirrie* (previously known by the phrase name *Atriplex* sp. Yeelirrie Station (L. Trotter & A. Douglas LCH 25025))
- potential radiological impacts to human health and non-human biota
- potential impacts on Short Range Endemic Species (e.g. Shield-backed Trapdoor Spider - *Idiosoma nigrum*)
- concerns with dust and air quality
- potential problems with how the release of solutes from the tailings storage facility had been simulated
- concerns about the water usage for a region of poor water supply and poor water security
- the transport of uranium and potential for spillage
- potential impacts to livelihood because of living near the proposed mine
- concerns regarding the consideration of Aboriginal heritage
- the consideration of cumulative environmental impacts of uranium projects
- the limited presentation of management plans with the PER document.

These issues were addressed through the WA EPA's assessment and appeals processes.

*WA EPA Assessment Report, WA Appeals, Additional Information and extension of timeframe*

11. The WA EPA released an assessment report and recommendations on 3 August 2016. The WA EPA concluded the proposal could not meet the State environmental objective for the protection of subterranean fauna and recommended the proposal not be approved. A summary of the submissions to the WA EPA and the proponent's response to submissions are included in the WA EPA Assessment Report at Appendix 7.
12. Despite recommending the proposal not be approved, the WA EPA also provided a list of recommended conditions that they considered should be imposed should the WA Minister decide to approve the proposal. These conditions formed the basis of the WA conditions of approval.
13. On 2 September 2016, a delegate for the Minister for the Environment requested further information from the proponent under section 132 of the EPBC Act on the economic and social impacts of the proposed action; the proponent's international environmental history; and how the proponent intends to 'ensure the survival of a self-sustaining population of

mature individuals of the Western population of the *Atriplex yeelirrie*, having regard to the EPBC Act Policy Statement - Translocation of Listed Threatened Species (noting that the *Atriplex yeelirrie* was being considered in the context of 'the environment' for the purposes of the controlling provisions at sections 21 and 22A). The further information requested was provided by the proponent on 11 October 2016 and 17 January 2017. Additional information on the proposed action has subsequently also been provided by the proponent on 19 June 2017, 21 November 2017 and 18 July 2018.

14. On 2 September 2016, a delegate for the Minister for the Environment also extended the statutory timeframe for making a decision on whether or not to approve the proposed action by 40 days. The statutory timeframe for a final decision was 3 April 2017.
15. A delegate for the Minister for the Environment advised the WA EPA on 2 September 2016 of the extended statutory timeframe, and also requested further information from the WA EPA, including the final Appeals Convenor Report, the WA Minister's Appeal Determination and the WA Approval, when these documents became available. The further information requested was provided by the WA EPA on 24 January 2017.
16. Twenty (20) appellants appealed to the WA Appeals Convenor against the decision of the WA EPA. Two appellants argued that impacts on subterranean fauna could be managed. The remaining 18 appeals supported the WA EPA's recommendation that the proposed action should not be implemented, and also took the view that impacts on several of the eight other environmental factors considered by the WA EPA were not acceptable.
17. Following the appeals in December 2016, the WA Appeals Convenor upheld the WA EPA's decision and recommended that the appeals be dismissed. On 14 December 2016, the WA Minister allowed the appeals in part, in respect of flora and vegetation and the public availability of plans and dismissed the other grounds of appeal.

#### *WA Minister's Approval<sup>3</sup> and Court Proceedings*

18. On 16 January 2017, the WA Minister approved the proposed action, subject to conditions, by issuing Ministerial Statement 1053 under section 45 of the EP Act. Under the EP Act, in deciding whether or not to approve the proposed action, the Minister was permitted to consider additional factors that the WA EPA was not, including social and economic matters.
19. On 20 June 2017, the WA Minister for Mines and Petroleum announced a ban on future uranium mining in WA. The ban does not apply to the four already State approved uranium projects (including the proposed action), namely, Toro Energy's Wiluna Project, Vimy Resources' Mulga Rock project, and Cameco's Kintyre and Yeelirrie projects.
20. On 4 July 2017, the Environmental Defenders Office (on behalf of the Conservation Council of WA and members of the Tjiwarl Native Title group) commenced proceedings in the Supreme Court of WA for a judicial review of the decision made by the former WA Environment

<sup>3</sup> WA Minister's Approval (Ministerial Statement No. 1053) cited in this document is available on the WA EPA website at: <http://www.epa.wa.gov.au/sites/default/files/1MINSTAT/Statement%20No%20%201053.pdf>



Minister, the Hon Albert Jacob MLA, to approve the Yeelirrie uranium mine. The WA Supreme Court dismissed proceedings on 7 February 2018.

21. On 8 March 2018, the Conservation Council of WA lodged an appeal against the WA Supreme Court's decision.

*Proposed decision*

22. On 5 March 2019, following consideration of the Department's proposed decision brief, I proposed to approve the taking of the proposed action under s130(1) and 133 of the EPBC Act. At the same time, I proposed to attach conditions of approval under section 134 of the EPBC Act.
23. Also on the 5 March 2019, I wrote to the following parties, seeking comments on my proposed decision:
  - a. the Proponent (Cameco Australia Pty Ltd)
  - b. Commonwealth Minister for Health
  - c. Commonwealth Minister for Resources and Northern Australia
  - d. Commonwealth Minister for Indigenous Affairs
  - e. WA Minister Environment; Disability Services
24. The proponent responded to the invitation to comment on 17 March 2019, Minister Scullion provided a response on 1 April 2019 and Minister Canavan provided a response on 5 April 2019. The comments received were taken into consideration in making my final decision.

*Final Decision*

25. On 10 April 2019, I approved, subject to conditions, the taking of the proposed action under section 130(1) and section 133 of the EPBC Act for the purposes of the controlling provisions in sections 18 and 18A (listed threatened species and ecological communities), sections 20 and 20A (listed migratory species), and sections 21 and 22A (protection of the environment from nuclear actions).

**Evidence or other material on which my findings were based**

26. My decision to approve the proposed action was based on consideration of the final approval decision brief prepared by the Department dated 5 April 2019. The final approval decision brief included the following documents that I relied on in making my decision:

A. Proposed decision briefing

- A. Legal Considerations Report

Appendix A: Assessment Report<sup>4</sup>

Appendix B: Additional Assessment Documentation

B1: Public Environmental Review<sup>5</sup>

B2: WA Appeals Convenor Report

B3: WA Minister's Appeals Determination<sup>6</sup>

B4: WA Minister's Approval<sup>7</sup>

B5: Additional Information received 11 October 2016, 17 January 2017, 19 June 2017, 21 November 2017, and 18 July 2018 - Attachment

B6: Comment received from WA Minister for Environment; Disability Services (24 May 2017)

Appendix C: EPBC Act Policy Statement - Translocation of Listed Threatened Species<sup>8</sup>

Appendix D: Supporting Documents

D1: Environment Reporting Tool Report (2009) and Environment Reporting Tool Report (2018)

D2: National Recovery Plan for Malleefowl<sup>9</sup>

D3: National Recovery Plan for Greater bilby<sup>10</sup>

<sup>4</sup> WA EPA Assessment Report cited in this document is available on the WA EPA website at: [http://www.epa.wa.gov.au/sites/default/files/EPA\\_Report/Rep%201574%20Yeelirrie%20PER%20030816.pdf](http://www.epa.wa.gov.au/sites/default/files/EPA_Report/Rep%201574%20Yeelirrie%20PER%20030816.pdf)

<sup>5</sup> Public Environmental Review documentation cited in this document is available on the WA EPA website at: <http://epa.wa.gov.au/proposals/yeelirrie-uranium-project>

<sup>6</sup> WA Appeals Convenor Reports and Determination are available at the WA Office of the Appeals Convenor EP Act 1986 website at: <https://www.appealsconvenor.wa.gov.au/report-1574-yeelirrie-uranium-project>

<sup>7</sup> WA Minister's Approval (Ministerial Statement No. 1053) cited in this document is available on the WA EPA website at: <http://www.epa.wa.gov.au/sites/default/files/1MINSTAT/Statement%20No%20%201053.pdf>

<sup>8</sup> EPBC Translocation Policy Statement cited in this document is available at the Department of Environment website at: <http://www.environment.gov.au/resource/epbc-act-policy-statement-translocation-listed-threatened-species-assessment-under-chapter>

<sup>9</sup> National Recovery Plan for Malleefowl (*Leipoa ocellata*) cited in this document is available at the Department of the Environment website at: <http://www.environment.gov.au/resource/national-recovery-plan-malleefowl-leipoa-ocellata>

<sup>10</sup> National Recovery Plan for Greater bilby (*Macrotis lagotis*) cited in this document is available at the Department of the Environment website at: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-greater-bilby-macrotis-lagotis>



- D4: Conservation Advice for Greater bilby<sup>11</sup>
- D5: Conservation Advice for Princess parrot<sup>12</sup>
- D6: National Recovery Plan for Black-flanked rock-wallaby<sup>13</sup>
- D7: Conservation Advice for Black-flanked rock-wallaby<sup>14</sup>
- D8: Recovery Plan for Great desert skink<sup>15</sup>
- D9: Conservation Advice for Great desert skink<sup>16</sup>
- D10: Conservation Advice for Night parrot<sup>17</sup>
- D11: Threat Abatement Plan and Background - Rabbits<sup>18</sup>
- D12: Threat Abatement Plan and Background - Goats<sup>19</sup>
- D13: Threat Abatement Plan and Background – European Red Fox<sup>20</sup>

<sup>11</sup> Conservation Advice for Greater bilby (*Macrotis lagotis*) cited in this document is available at the Department of the Environment website at: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/282-conservation-advice-15072016.pdf>

<sup>12</sup> Conservation Advice for Princess parrot (*Polytelis alexandrae*) cited in this document is available at the Department of the Environment website at:

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/758-conservation-advice-01022018.pdf>

<sup>13</sup> National Recovery Plan for Black-flanked rock-wallaby (*Petrogale lateralis lateralis*) cited in this document is available at the Department of the Environment website at:

<http://www.environment.gov.au/biodiversity/threatened/publications/recovery/recovery-plan-five-species-rock-wallabies>

<sup>14</sup> Conservation Advice for Black-Flanked Rock-wallaby (*Petrogale lateralis lateralis*) cited in this document is available at the Department of the Environment website at:

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/66647-conservation-advice-07122016.pdf>

<sup>15</sup> National Recovery Plan for Great desert skink (*Liopholis kintorei*) cited in this document is available at the Department of the Environment website at:

<http://www.environment.gov.au/biodiversity/threatened/publications/recovery/recovery-plan-great-desert-skink>

<sup>16</sup> Conservation Advice for Great desert skink (*Liopholis kintorei*) cited in this document is available at the Department of the Environment website at:

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/83160-conservation-advice-16122016.pdf>

<sup>17</sup> Conservation Advice for Night Parrot (*Pezoporus occidentalis*) cited in this document is available at the Department of the Environment website at:

<http://www.environment.gov.au/biodiversity/threatened/species/pubs/59350-conservation-advice-15072016.pdf>

<sup>18</sup> Threat Abatement Plan and Background for land degradation by rabbits cited in this document is available at the Department of the Environment website at: <http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved>

<sup>19</sup> Threat Abatement Plan and Background for unmanaged goats cited in this document is available at the Department of the Environment website at: <http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved>

<sup>20</sup> Threat Abatement Plan and Background for predation by European red fox cited in this document is available at the Department of the Environment website at: <http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved>

D14: Threat Abatement Plan and Background – Feral Cats<sup>21</sup>

D15: Threat Abatement Plan and Background – Feral Pigs<sup>22</sup>

Appendix E: Western Australian Biodiversity Science Institute Research Program<sup>23</sup>

Appendix F: Germination Trial of *Atriplex Yeelirrie* (2015)<sup>24</sup>

Appendix G: Additional information – Professor Kingsley Dixon – 27 June 2017

**B: Proposed Approval Decision**

B1: Proposed Approval Decision Notice

B2: Proposed Approval Decision Notice

**C: Letters**

C1: Proponent

C2: Minister for Health

C3: Minister for Resources and Northern Australia

C4: Minister for Indigenous Affairs

C5: WA Minister Environment; Disability Services

**D: WA Supreme Court Decision**

**E: Ministerial Correspondence**

E1: Former Senator Scott Ludlam

E2: Former Senator Scott Ludlam

E3: Vicky McCabe, Traditional Owner and anti-nuclear activist

**B. Responses to invitation for comment on proposed decision**

B1: Proponent – 17 March 2019

<sup>21</sup> Threat Abatement Plan and Background for predation by feral cats cited in this document is available at the Department of the Environment website at: <http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved>

<sup>22</sup> Threat Abatement Plan and Background for feral pigs cited in this document is available at the Department of the Environment website at: <http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved>

<sup>23</sup> The WA Biodiversity Science Institute program (WABSI) cited in this document is available at the WABSI website at: <https://wabsi.org.au/our-work/programs/subterranean-fauna/>

<sup>24</sup> The Germination Trial of *Atriplex yeelirrie* paper is available on the Cameco Australia website at: [https://www.camecoaustralia.com/uploads/downloads/per\\_documents/Appendix\\_E6 - Germination Trial of Atriplex sp. Yeelirrie Station.pdf](https://www.camecoaustralia.com/uploads/downloads/per_documents/Appendix_E6_-_Germination_Trial_of_Atriplex_sp._Yeelirrie_Station.pdf)



B2: Minister Scullion – 1 April 2019

E. Department's consideration of comments

**Findings on material questions of fact**

27. My findings are set out below in relation to the relevant controlling provisions for the proposed action and other matters which I was required to take into account in making my decision.

**Mandatory considerations – paragraph 136(1)(a) – matters relevant to matters protected by controlling provisions**

28. Section 136(1) of the EPBC Act, provides that in deciding whether or not to approve an action and what conditions to attach to the approval, I must consider the following, so far as they are not inconsistent with any other requirement of Subdivision B of Division 1 of Part 9 of the EPBC Act:
- a. matters relevant to any matter protected by the controlling provisions (a **matter of national environmental significance** or **MNES**); and
  - b. economic and social matters.
29. I noted that the controlling provisions for the proposed action were sections 18 and 18A (listed threatened species and ecological communities), sections 20 and 20A (listed migratory species), and sections 21 and 22A (protection of the environment from nuclear actions).

**Matters relevant to any matter protected by the controlling provisions**

30. I noted the assessment of the proposed action was undertaken by the WA EPA through consideration of nine (9) key environmental factors and an analysis of those factors in relation to their objectives (refer to Section 3 of the WA Assessment Report). I was satisfied that this process, combined with the additional information the proponent provided to the Department, provided sufficient information to be able to decide whether to approve the proposed action for each of the controlling provisions.

**Sections 21 and 22A - the environment in relation to nuclear actions**

31. Departmental briefing advised that the proposed action is a nuclear action under section 22(1) of the EPBC Act, as it involves the mining and milling of uranium ore, and under sections 21(1) and 22A(1) of the EPBC Act, a constitutional corporation must not take a nuclear action that has, will have or is likely to have a significant impact on the environment. I noted that the Department was satisfied that the proponent is a constitutional corporation.
32. This means that, in deciding whether to approve the proposed action, I was required to consider the likely impacts of the action on the 'environment'.
33. I noted that under section 528 of the EPBC Act, the 'environment' includes:
- a. Ecosystems and their constituent parts, including people and communities; and

- b. Natural and physical resources; and
  - c. The qualities and characteristics of locations, places and areas; and
  - d. Heritage values of places; and
  - e. The social, economic and cultural aspects of a thing mentioned in paragraph (a), (b), (c) or (d).
34. Departmental briefing advised that the impacts to the 'environment' as a result of the proposed action are addressed in the WA Assessment Report through consideration of the following nine (9) key environmental factors identified by the WA EPA:
- 1. Subterranean fauna
  - 2. Flora and vegetation
  - 3. Terrestrial fauna
  - 4. Human health
  - 5. Hydrological processes
  - 6. Inland waters environmental quality
  - 7. Heritage
  - 8. Rehabilitation and decommissioning
  - 9. Offsets
35. I noted that the Department considered that WA EPA's consideration of these environmental factors, including their analysis of the impacts of the proposed action on these factors, and the EPBC listed species discussed in the analysis of ss 20 and 20A (paragraphs 174- 182) and ss 18 and 18A (paragraphs 183 - 259), adequately assessed the likely impacts of the proposed action on the 'environment' (as protected by sections 21 and 22A of the EPBC Act).
36. I was satisfied that this assessment provided sufficient information on the likely impacts of the proposed action on the environment (within the meaning of section 528 of the EPBC Act) to allow me to decide whether to approve the proposed action for the purposes of sections 21 and 22A.

***Subterranean fauna***

37. Departmental briefing advised that no subterranean fauna species are listed threatened species under the EPBC Act. However, having regard to the definition of 'environment', impacts on subterranean fauna are relevant as part of the assessment of the impact of the proposed action, as a nuclear action, on the 'environment'.

38. The WA assessment documentation identified:
- a. A total of 73 species of stygofauna and 45 species of troglofauna were located within the fauna survey area that comprised the proposed impact area. Of these, a total of 11 stygofauna species and 5 troglofauna species are currently known to occur only within the proposed impact area (mine pit and groundwater drawdown area of 0.5 m).
  - b. the proponent committed to the establishment of a troglofauna protection area, which would reduce the size of the proposed impact area, and subsequently reduce the impact on troglofauna species known to only occur within the proposed impact area to one.
  - c. Even with implementation of the troglofauna protection area, the proposed action has the potential to result in the loss of 12 subterranean fauna species (11 stygofauna and 1 troglofauna species) only known to occur within the proposed impact area.
39. The WA EPA assessed the potential impacts of the proposed action on subterranean fauna and formed the view that there was too great a chance of a loss of species that are only found in the proposed impact area. In particular, the WA EPA considered that the proposal could directly impact subterranean fauna through the removal of habitat during mining, surface disturbance that disrupts nutrient inputs, process chemical spills and changes to groundwater levels or quality.
40. On that basis, the WA EPA recommended that the proposal could not be managed to meet the objectives of the EP Act for subterranean fauna, and recommended the action should not be implemented.
41. In response to the WA EPA's recommendation, the proponent submitted additional information to the WA Appeals Convenor in relation to the use of environmental surrogates (the use of information on one species to infer the likely distribution of another poorly sampled species) together with survey information to infer that subterranean fauna species only known from within the impact area may also occur in other habitat types outside of the development footprint. The proponent also proposed a number of additional avoidance, mitigation and offset controls to reduce impacts on the subterranean fauna species.
42. In particular, the proponent committed to the following measures intended to reduce the likelihood that the proposed action could result in the loss of the 12 subterranean fauna known only to occur in the proposed impact area:

*Avoidance measures*

- Not locating any groundwater abstraction wells within the palaeochannel to the northwest of the proposed mine pit.

*Mitigation measures*

- Relocating groundwater abstraction wells to minimise groundwater impacts, and
- development and implementation of a groundwater management plan to manage drawdown and water quality by:



- not exceeding groundwater quality or absolute groundwater level threshold criteria,
- not exceeding the 0.5 m drawdown contour, and reducing drawdown to less than 0.5 m at the location of some subterranean fauna species currently only known to the south-east of the mine pit,
- development of a water quality and groundwater level monitoring program at the site of the proposed water reinjection point that is within proximity to the troglofauna protection area,
- development of a subterranean fauna management plan that will include location of monitoring bores; detailed monitoring program for water quality and groundwater level; baseline data for water quality and absolute water level; trigger criteria, threshold criteria and associated contingency actions; and reporting.

#### *Offsets*

- troglofauna sampling and habitat mapping to improve knowledge and investigate surrogacy predictions, and
  - development and implementation of a research program to further develop the understanding of the impact on subterranean fauna from mining and groundwater abstraction in the region.
43. The WA Appeals Convenor was not satisfied that these additional measures would enable the WA EPA's objectives for subterranean fauna to be met. In particular, the WA Appeals Convenor was not satisfied that the proponent had demonstrated that:
- a. the extent of habitat for subterranean fauna species could exist outside of the proposed impact area given the calcrete is considered to represent an island, and the proponent has not been able to demonstrate habitat pathways exist to other calcrete systems, and no physical or biological surrogate was provided, and
  - b. an appropriate groundwater management system may be able to manage groundwater drawdown around stygofauna species.
44. Departmental briefing advised that on 23 February 2017, the former Senator Scott Ludlam wrote to my predecessor regarding the potential loss of subterranean fauna that are only found in the proposed impact area. Mr Ludlum urged my predecessor to reject the proposed action because it was his belief that it is inconsistent with objects of the EPBC Act, in particular the principles of ecologically sustainable development.

#### *Department's assessment of potential impacts on subterranean fauna*

45. I noted that the Department considered the information and analysis of the potential impacts of the proposed action on subterranean fauna in section 3.1 and Appendix 3 of the WA Assessment Report.

46. Based on this information, the Department was satisfied that the likely impacts of the proposed action on subterranean fauna included the removal of critical habitat during mining and surface disturbance that disrupts nutrient inputs, process chemical spills and changes to groundwater levels or quality.
47. Furthermore, I noted that the Department accepted that a potential consequence of these impacts is the loss of one or more of the 12 species of subterranean fauna that are only known to occur in the proposed impact area.
48. I noted that the Department considered pages 5 – 23 of the Appeals Convenor Report and the additional information on subterranean fauna provided by the proponent on 21 November 2017. This additional information reflected the information submitted to the WA Appeals Convenor. In particular, the Department noted that the proponent committed to implementing the avoidance and mitigation measures set out above at paragraphs 42.
49. The proponent had indicated in the PER, the WA Appeals Convenor Report and additional information on subterranean fauna provided by the proponent on 21 November 2017 that it was their belief that it was possible to demonstrate, by extension of habitat or surrogates, that the subterranean fauna species, currently only known from within the impact area, exist outside. I noted that to assist in achieving this outcome, in 2017 the proponent approached the Western Australian Biodiversity Science Institute (WABSI) to initiate a subterranean fauna research project.
50. Departmental briefing advised that in June 2018, WABSI released a subterranean research program with the intent of addressing the large knowledge gaps that exist in relation to basic biology and ecology of subterranean fauna and subsequently reduce the uncertainty surrounding conservation of subterranean fauna species. Four projects within the research program are currently being progressed, with three of them now fully funded and soon to be started. The timeframe for completion of the research projects is 1 – 5 years. This aligns with the proponents proposed 5-year lead time before activities associated with the proposed action will commence.
51. Based on this information, and the ongoing research in this field, I noted that the Department did not consider that the proposed action will inevitably result in the loss of the 12 subterranean fauna species.
52. Rather, while the Department acknowledged that there was a clear risk that this will be the consequence of taking the proposed action, it considered there was reasonable grounds to believe that this risk could be reduced if the proposed action was taken in accordance with the proposed conditions that were at Attachment B2 of the Department's Proposed Approval Decision Brief (the Attachment B2 conditions), particularly in relation to risks posed to subterranean fauna by impacts to ground water.

53. Relevantly, the Attachment B2 conditions would require the proponent to:
- a. ensure groundwater drawdown at bores within the south-east site is less than 0.5 metres for the life of the approval. The purpose of this condition is to avoid impacts on three of the stygofauna species known to only occur in the area;
  - b. not exceed the 0.5 metre groundwater drawdown contour. The purpose of this condition is to manage impacts on subterranean fauna species;
  - c. prior to the commencement of the action, develop and implement a ground water monitoring program with the objective of maintaining the ecological function of groundwater within the development envelope to manage the impacts on subterranean fauna species and troglofauna species. This includes imposing trigger levels to both reduce and avoid impacts on subterranean fauna species and troglofauna species. The ground water monitoring program must be reviewed by a suitably qualified subterranean fauna ecologist and suitably qualified hydrogeologist and must be submitted to the Department; and
  - d. submit for my approval, evidence that the proposed action will not result in the extinction of troglofauna species in Area 1. Area 1 cannot be cleared until I have approved the evidence. This condition is intended to protect the four troglofauna species within the proposed troglofauna protection area.
54. I noted that the Department considered these strong measures that, when combined with the ongoing research programs into extending habitat for the species in question, could reasonably be considered to mitigate the risks posed to subterranean fauna, particularly in relation to ground water impacts.
55. On this basis, the Department considered it open to me to form the view that the Attachment B2 conditions would be sufficient to reduce the impacts of the proposed action on the environment to an acceptable level – particularly when those risks were balanced against the social and economic benefits of the project.
56. On this basis, the Department considered that the Attachment B2 conditions were necessary or convenient to protect the environment from the impacts resulting from the proposed action.
57. That said, while the Department considered there was a reasonable basis for me to conclude that the Attachment B2 would be sufficient to ensure that risks to subterranean fauna are managed to an acceptable level when balanced with the social and economic benefits of the proposal, the Department also acknowledged that the environmental risks at issue are both serious and uncertain.
58. In particular, the Department noted that:
- a. the Attachment B2 conditions were primarily directed at avoiding and reducing the likelihood of impacts to the subterranean fauna species; and



- b. given the scientific uncertainty surrounding the biology and ecology of the subterranean fauna species in question, there were significant uncertainties as to whether the Attachment B2 conditions would be effective in achieving good environmental outcomes in the event that neither the proponent, nor the ongoing research by third parties, were able to successfully demonstrate that these species exist outside the project area (either by an extension of habitat or surrogates).
- 59. The Department therefore acknowledged that success in ensuring good environmental outcomes was ultimately dependent on scientific advancements occurring prior to the intended commencement of the proposed action. Therefore, there remained a real chance that if the action was taken in accordance with the Attachment B2 conditions, one or more of the 12 subterranean fauna species known only to occur in the project area would still be lost.
- 60. The Department therefore recommended that if I decided to approve the proposed action for the purposes of the controlling provisions in sections 21 and 22A, I instead attach the proposed conditions set out at Attachment B1 to the Department's Proposed Approval Decision Brief (the Attachment B1 conditions), rather than the Attachment B2 conditions.
- 61. The Attachment B1 conditions would (relevantly) require the proponent to:
  - a. submit for my approval, evidence that the proposed action would not result in the extinction of troglofauna species in Area 1; and
  - b. provide suitable evidence for my approval that demonstrated the action would not result in the extinction of the subterranean fauna species. The proponent would be required to provide the suitable evidence prior to the commencement of the action for my approval.
- 62. I noted that the subterranean fauna species referred to are the eleven (11) stygofauna species - *Enchytraeidae* sp. Y5, *Enchytraeidae* sp. Y6, *Halicyclops* cf. *eberhardi* sp. B, *Novanitocrella* 'araia' sp. n., *Schizopera akolos*, *Schizopera emphysema*, *Schizopera* sp. 7439, *Philoscidae* sp. n. Y2, *Atopobathynella* sp. 'line K', *Enchytraeidae* sp. Y4 and *Kinnecaris* 'lined' sp. n., and one (1) troglofauna species - *Trichorhina* sp. n. F.
- 63. I noted that the Department considered that the environmental risks posed to subterranean fauna was likely to be fully mitigated by the Attachment B1 conditions, which would ensure that these species are not lost.
- 64. However, the Department also acknowledged that, despite the proponent indicating that they believe it would be possible to demonstrate that the proposed action will not result in the loss of these species, the lack of scientific certainty that exists in relation to the biology and ecology of subterranean fauna species may result in the proponent not being able to commence taking the action if they cannot prove that extinction of subterranean fauna will be avoided.
- 65. The Departmental briefing advised that if the project could not proceed, the social and economic benefits of the proposed action would not be realised.

66. Taking this into account, the Department acknowledged it was open to me to form the view that the environmental risks posed to the subterranean fauna would still be mitigated to an acceptable level by attaching the Attachment B2 conditions proposed conditions, even though this course of action was likely to result in a higher residual environmental risk than the Attachment B1 conditions.

*My consideration of the impacts on subterranean fauna*

67. In making my decision about whether to approve the taking of the proposed action, and what conditions to attach to the approval, I took into consideration the information in the Departmental briefing on the likely impacts on subterranean fauna, including in assessment documentation, and the Department's recommendations as set out above.
68. I agreed with the Department's description of the likely impacts on subterranean fauna. I also accepted that 12 subterranean fauna species likely to be impacted by the proposed action have not been located outside of the proposed impact area. I accepted that there was a risk that, if these impacts were realised, the species could potentially be lost.
69. However, I also agreed with the Department that the loss of these species is not inevitable if the project goes ahead, and I particularly noted:
- a. The strength of the measures required by the proponent in the Attachment B2 conditions, combined with the commitments the proponent has made in the PER to avoid and mitigate impacts on subterranean fauna;
  - b. There is significant scientific uncertainty about the location of these subterranean fauna and they may, in fact, exist outside the proposed impact zone;
  - c. The number of ongoing research projects that are intended to reduce the uncertainty surrounding conservation of subterranean fauna species, and the fact that these research projects are intended to be completed prior to the time the proponent has indicated they intend to commence the proposed action;
  - d. The information from the proponent that they believe it is possible to demonstrate by extension of habitat or surrogates that the subterranean fauna species exist outside the proposed impact zone.
70. Having considered these factors, I formed the view that, while there are some significant risks to subterranean fauna species as a result of the action, these risks do not reach an unacceptable level.
71. I then considered the significant social and economic benefits of the project (discussed in detail at paragraphs 260-268 of the document) and the fact that if I attached the Attachment B1 conditions, there is a real chance that the project could not go ahead. I was satisfied that if the project did not go ahead and the social and economic benefits would not be realised, this would have an adverse effect on the region and the State as a whole.

72. I noted that the Department's recommendation that I attach the Attachment B1 conditions was on the basis that those conditions would fully mitigate the environmental risks to the subterranean fauna species and ensure that none of the species were lost. In making this recommendation, the Department considered only the environmental outcomes, and did not weigh the environmental risks against the social and economic benefits of the project. Rather, as the Department's briefing noted, this balancing exercise was for me to do.
73. I also noted that the Department considered that, despite its recommendation, it was open to me to form the view that the environmental risks posed to the subterranean fauna by the proposed action would be mitigated to an acceptable level by attaching the Attachment B2 conditions.
74. Having balanced the environmental risks to the subterranean fauna against the likely significant social and economic benefits of the project, I formed the view that the Attachment B2 conditions were the most appropriate in the circumstances. These conditions, which contain strong mitigation measures that combined with the ongoing research programs into extending habitat for the species in question would mitigate the environmental risks posed to the subterranean fauna by the proposed action to an acceptable level while still ensuring that the social and economic benefits of the project are able to be realised.
75. On this basis, I was satisfied that, provided the proposed action is taken in accordance with the Attachment B2 conditions, it would not have an unacceptable impact on the subterranean fauna and, therefore, the environment. I therefore decided to attach the Attachment B2 conditions, described above at paragraph 53.

#### **Flora and vegetation**

76. Departmental briefing advised that the proposed action would result in the loss of 2422 hectares of native vegetation and that the WA Assessment Report noted that this would result in the loss of conservation significant species, including *Eremophila arachnoides* subsp. *arachnoides*, *Bossiaea eremaea*, *Euryomyrtus inflata* and *Atriplex yeelirrie*, and disruption to ecosystem function. I noted that impacts to flora and vegetation was likely to occur as a result of:
- direct clearing and indirect impacts
  - groundwater drawdown
  - invasion by exotic species
  - altered fire regimes
  - dust deposition and exposure to radio-nuclides
77. The WA EPA concluded that the objective for Flora and Vegetation could be met provided conditions were imposed to manage direct and indirect impacts on native vegetation. I noted that as a condition of the WA Approval, the proponent is required to prepare and implement a Flora and Vegetation Management Plan to avoid and minimise direct and indirect impacts,



as far as practicable, on conservation significant flora species and vegetation units (condition 9 of the WA Approval).

78. I noted that further information and analysis of the impacts of the proposed action to flora and vegetation was set out in section 3.2 and at Appendix 3 of the WA Assessment Report, and pages 33 – 34 of the Appeals Convenor Report.
79. I noted that the Department was satisfied that the likely impacts of the proposed action on the environment in respect of flora and vegetation had been sufficiently addressed through the WA Assessment Report, Appeals Convenor Report, and the conditions of the WA Approval, and therefore did not require additional investigation or analysis; other than in respect to the likely impacts of the proposed action on *Atriplex yeelirrie*.
80. The Department recommended attaching a condition to the approval of the proposed action that would require the proponent to comply with condition 9 of the WA Approval to ensure that impacts to the environment through risks to native vegetation would not be unacceptable.
81. I agreed with the Department's recommendation and was satisfied that such a condition was necessary and convenient for the protection of flora and vegetation components of the environment from direct and indirect impacts of the proposed action.
82. The Appeals Convenor Report stated that submissions raised concerns about the vegetation assessment being inadequate and there was a lack of consideration regarding how to manage weeds. I noted that the Appeals Convenor Report concluded that the WA EPA assessment appropriately determined the vegetation assessment was consistent with relevant policy and guidance, and the proposed conditions adequately address weed management and that this ground for appeal was dismissed.

#### *Flora and Vegetation – Atriplex yeelirrie*

83. Departmental briefing advised that the threatened plant species *Atriplex yeelirrie* was listed as endangered under the EPBC Act on 22 October 2015 following the controlled action decision.
84. Departmental briefing also advised that under section 158A, approval process decisions are not affected by listing events that occur after a section 75 decision is made. However, as the proposed action is a nuclear action, the impact of the action on the plant species *Atriplex yeelirrie* is still relevant as part of the assessment of the impact of the proposed action on the 'environment'.
85. The Departmental briefing advised that *Atriplex yeelirrie* is a saltbush with a highly restricted distribution limited to two genetically distinct populations on Yeelirrie Station within a palaeovalley of the Yilgarn craton that contains significant near-surface uranium mineralisation. The two populations of *Atriplex yeelirrie* are referred to as the Western and Eastern populations. The Western and Eastern populations have been found to have similar

levels of genetic diversity; however, there is also an unexpected level of genetic differentiation given the proximity.

86. The Western population occurs wholly within the proposed impact area over the highest grade ore. The Western population encompasses two sub-populations, located in close proximity to one another, comprising 85,542 individual plants over an area of 76 ha. The Eastern population occurs outside the proposed impact area, approximately 30 km south-east of the Western population, and encompasses 10 sub-populations also in close proximity to one another, comprising 190,755 individual plants over an area of 130 ha.
87. Departmental briefing advised that Western Botanical (2015) undertook regional surveys for *Atriplex yeelirrie* in late 2009, early 2010 and May 2010, targeting lake systems (including Annean, Mason, Miranda, Nabberu, Noondie and Way) and no new populations were discovered.
88. As set out in the WA Assessment Report, the potential impacts of the action on *Atriplex yeelirrie* considered by the WA EPA included:
  - a. the clearing of 31 per cent of the known individual plants of *Atriplex Yeelirrie*,
  - b. the clearing of one of the two known populations, being the entire Western population of the species,
  - c. a reduction in the known area occupied from 206 ha to 130 ha,
  - d. a loss of genetic diversity, given the Western population is genetically distinct from the Eastern population, and
  - e. the clearing of 37 per cent of the known extent of the *Atriplex yeelirrie* shrubland on calcrete vegetation unit.
89. Departmental briefing advised that the proponent committed to the following mitigation measures for *Atriplex Yeelirrie* that were outlined in the PER:
  - a. Fencing the Eastern population to exclude entry by livestock from neighbouring pastoral leases.
  - b. A research conservation program to address the following:
    - i. research activities to further understand the species and to support potential translocation including seed collection and propagation research and trials,
    - ii. implementation of a targeted research and trials program on ecophysiology, seed biology and translocation,
    - iii. development of an Interim Recovery Plan, leading to the development of a full Recovery Plan in consultation with Department of Parks and Wildlife, and
    - iv. development of a Trial Translocation Plan in consultation with the Department of Parks and Wildlife.

- c. Reintroduction of the Western population to approximately 104 ha of a back-filled mine void within the proposed impact area, early in the mine development program.
  - d. Translocation to establish a new population or populations of the Western population of *Atriplex yeelirrie*. Cameco asserts that features of the species that may make it amenable to translocation include:
    - i. individual plants hold seed over several seasons. Seed can be readily harvested and stored,
    - ii. seed can be readily germinated,
    - iii. as evidenced by the rehabilitation populations, the species can establish and grow in soil that differs from natural conditions, including soils that exhibit different salinity and profile characteristics to the soils of the natural populations, and
    - iv. potential translocation sites at Lake Mason and Yakabindie (totalling ~220 ha) with similar soil and landscape characteristics to those supporting the existing population have been identified (Cameco 2016) and partially assessed.
  - e. Tenure options, including the establishment of a Conservation Area over the Eastern population, would be investigated to determine the best option to ensure long-term protection.
  - f. A plan to protect the translocated population on the rehabilitated mine pit to ensure it would not be cleared during mine development.
90. Departmental briefing advised that the WA EPA concluded that the objective for Flora and Vegetation could be met provided a condition was imposed to:
- avoid direct and indirect impacts to the Eastern population of *Atriplex yeelirrie* (condition 8 of the WA approval), and
  - prior to ground disturbing activities, prepare and submit an *Atriplex yeelirrie* offset plan to meet the objective 'to ensure the survival of a self-sustaining population of mature individuals of the Western population of the *Atriplex yeelirrie*' (conditions 17 of the WA Approval). Should the objective of the *Atriplex yeelirrie* offset plan not be achieved within 20 years from implementation, the approval holder must submit a revised *Atriplex yeelirrie* offset plan.
91. I noted that further information and analysis of the impacts of the proposed action on *Atriplex yeelirrie* was provided in section 3.2 and at Appendix 3 of the WA Assessment Report, pages 35 – 38 of the Appeals Convenor Report, and additional information.
92. I noted the Department's advice that it was important to note that the proponent is not required to meet the objective of the *Atriplex yeelirrie* offset plan required by the WA approval prior to the clearing of the only known population of the Western population of *Atriplex yeelirrie* within the proposed impact area.



93. Departmental briefing advised that the Appeals Convenor Report noted that submissions raised concerns about:
- water drawdown and salinity impacting on the health of the Eastern population of *Atriplex yeelirrie*,
  - the use of the precautionary principle for Western population of *Atriplex yeelirrie*, and
  - the low likelihood of recreation of habitat and translocation being successful.
94. The Appeals Convenor Report concluded that the WA EPA assessment appropriately and adequately considered the potential impacts of the action on *Atriplex yeelirrie* and dismissed the ground of appeal.
95. I noted the information and analysis of the potential impacts of the proposed action on *Atriplex yeelirrie* as set out in section 3.2 and at Appendix 3 of the WA Assessment Report.
96. I also noted that based on this information, the Department agreed with the WA EPA's assessment that the likely impacts of the proposed action on *Atriplex yeelirrie* would result in the complete loss of the only known population of the Western population of *Atriplex yeelirrie* and that in order to maintain the status of the Eastern population, direct and indirect impacts should be avoided.
97. I noted that the Department considered pages 35 – 38 of the Appeals Convenor Report, the additional information on *Atriplex yeelirrie* provided by the proponent on 11 October 2016 and 21 November 2017 and information gathered by Departmental officers during a site visit of the proposal area in November 2017. I also noted that the additional information reflected the information submitted in the PER and to the WA Appeals Convenor. Departmental briefing advised that the proponent committed to implementing the avoidance and mitigation measures set out above at paragraph 89.
98. I understand that to assist in achieving the outcome for the Western population of *Atriplex yeelirrie*, the proponent commissioned Western Botanical in 2011 to conduct germination trials at the Yeelirrie site to assess the germinability of seed from old and new fruit with the intention of re-establishing the species. Following this study, Western Botanical recommended a more extensive and detailed seed germination study of *Atriplex Yeelirrie* be undertaken.
99. I noted that to confirm the potential for the establishment of a self-sustaining population of Western population of *Atriplex yeelirrie* outside the proposed impact area, in June 2017, the Department sought further advice from botanist Professor Kingsley Dixon from Curtin University and Kings Park Botanic Gardens. Professor Dixon confirmed that there is little known about the ecology and reproductive biology of *Atriplex Yeelirrie* and considers that to determine the success of a translocated population, a micro-genetic study of the Western population of *Atriplex Yeelirrie* would need to be carried out, including translocating the genetic material from the genetic study to different sites; analysing the natural regeneration

- of the species; undertaking corrective genetic work and carrying out (ongoing) genetic modelling.
100. I noted the proponent had indicated in the PER, the WA Appeals Convenor Report, and additional information on *Atriplex yeelirrie* provided by the proponent on 11 October 2016 and 21 November 2017 that it was their belief that it was possible to avoid the Eastern population of *Atriplex yeelirrie* and re-establish the Western population of *Atriplex yeelirrie* outside the development envelope from seed.
  101. The Department considered the WA EPA's assessment of the Eastern population of *Atriplex yeelirrie* and agreed that the potential impacts on the Eastern population of *Atriplex yeelirrie* could be avoided if the proposed action were undertaken in a manner that avoided any direct or indirect impacts on the Eastern population of *Atriplex yeelirrie*; therefore, the Department recommended the proponent be required to undertake the action in accordance with condition 8 of the WA approval.
  102. I agreed with the Department's recommendation and was satisfied that such a condition was necessary and convenient for the protection of the Eastern population of *Atriplex yeelirrie* from any direct or indirect impacts that may result from the proposed action. I therefore decided to attach a condition to the approval requiring the proponent to comply with condition 8 of the WA approval.
  103. I also noted that the Department had considered the WA EPA's assessment of the Western population of *Atriplex yeelirrie* and acknowledged that success in ensuring good environmental outcomes would ultimately be dependent on scientific developments occurring prior to the intended clearing of the Western population of *Atriplex yeelirrie* within the proposed impact area. In particular, there was some doubt as to whether the Western population of the *Atriplex yeelirrie* can successfully be re-established outside the proposed impact area without further research on the reproductive biology of the species. Therefore, there remains significant uncertainties as to whether condition 17 of the WA approval is likely to be effective in achieving good environmental outcomes in the event that the proponent is unable to successfully establish a self-sustaining population of the Western population of *Atriplex yeelirrie* prior to the clearing of the only known population of the Western population of *Atriplex yeelirrie*.
  104. I noted that for this reason, applying the precautionary principle, the Department recommended that if I decide to approve the proposed action for the purposes of the controlling provisions in sections 21 and 22A, I attach a condition that would require the proponent, prior to the commencement of the clearing of the Western population of *Atriplex yeelirrie*, to:
    - a. provide suitable evidence from a suitably qualified flora ecologist for my approval that demonstrates the survival of a self-sustaining population of mature individuals of the Western population of *Atriplex yeelirrie* outside the development envelope, and

- b. avoid any direct and indirect impacts on the Western population of *Atriplex yeelirrie* within the development envelope until I am satisfied the evidence meets the requirements of above condition.

105. I agreed with the Department's recommendation and was satisfied that such conditions were necessary and convenient for the protection of the only known population of Western *Atriplex yeelirrie* from complete loss, being a component of the environment. I therefore decided to attach such conditions to the approval.

### **Terrestrial fauna**

106. Departmental briefing advised that the proposed action had the potential to directly impact on terrestrial fauna species through the clearing of 2,422 hectares of potential fauna habitat and the WA Assessment Report noted that this could cause the loss of conservation significant species and disrupt ecosystem function. Other impacts to terrestrial fauna were likely to occur as a result of:

- direct loss of habitat and individuals
- altered surface water flows and groundwater hydrology
- increased risk of vehicle strikes
- feral predation
- habitat fragmentation
- weed infestation
- altered fire regimes
- increased dust emissions and radiation exposure.

107. Vertebrate and invertebrate fauna assessments confirmed the proposal site contains extensive areas of fauna habitat and significant fauna species were recorded, specifically:

- Australian Bustard (*Ardeotis australis*)
- Brush-tailed mulgara (*Dasyercus blythi*)
- Bush stone-curlew (*Burhinus grallarius*)
- Peregrine falcon (*Falco peregrinus*)
- Square-tailed kite (*Lophoictinia isura*)
- Central long-eared bat (*Nyctophilus major tor*)
- Striated grasswren (*Amytornis striatus striatus*)
- Fork-tailed swift (*Apus pacificus*)



- Slender-billed thornbill (Western) (*Acanthiza iredalei iredalei*) – since delisted as EPBC Act listed threatened species
  - Malleefowl (*Leipoa ocellata*) – EPBC Act listed threatened species
  - Black-flanked rock-wallaby (*Petrogale lateralis lateralis*) – Listed as vulnerable under the EPBC Act on 11 July 2000, and then uplisted to endangered on 7 December 2016, that is, following the controlled action decision
  - Shield-backed trapdoor spider (*Idiosoma nigrum*) – Listed as vulnerable under the EPBC Act on 26 April 2013, that is, following the controlled action decision.
108. The Departmental briefing advised that in addition to those species identified by WA EPA, the Department had also identified the following additional EPBC listed species that could potentially be impacted by the proposed action: Greater Bilby (*Macrotis lagotis*), Princess Parrot (*Polytelis alexandrae*), Great desert skink (*Liopholis kintorei*), Night parrot (*Pezoporus occidentalis*) and Oriental plover (*Charadrius veredus*). These species were discussed in the analysis of listed threatened species and communities (s18 and 18A), and listed migratory species (s20 and 20A), but also formed part of the assessment of impacts of the proposed action on the environment for the purposes of ss 21 and 22A.
109. The Appeals Convenor Report noted that submissions raised concerns about potential for fauna to drink contaminated tailings dam water, and the impacts of loss of habitat for conservation significant species should have been taken into account in the assessment. The Appeals Convenor Report concluded that the WA EPA assessment appropriately and adequately considered the potential impacts and dismissed the grounds of appeal.
110. The WA EPA concluded that, due to the existence of continuous and extensive habitat outside the proposal site, the objective for terrestrial fauna could be met provided conditions were imposed to manage direct and indirect localised impacts on terrestrial fauna and their habitat (vegetation communities). On this basis, the WA Approval imposed a condition on the approval holder requiring them to avoid impacts on terrestrial fauna and to prepare and implement a terrestrial fauna management plan (condition 10 of the WA Approval).
111. I noted that further information and analysis of the impacts of the proposed action to terrestrial fauna was provided in section 3.3 and at Appendix 3 of the WA Assessment Report, and page 38 – 39 of the Appeals Convenor Report.
112. I noted that the Department considered the impact of the proposed action on the environment in respect of terrestrial fauna had been sufficiently addressed through the WA Assessment Report, Appeals Convenor Report, and the conditions of the WA Approval, and therefore did not require additional investigation or analysis.
113. The Department recommended attaching a condition to the approval of the proposed action requiring compliance with condition 10 of the WA Approval. In addition, the Department recommended imposing a condition that the approval holder must not clear more than 2,422 hectares within the development envelope. I noted that the Department was satisfied that

these conditions would ensure that impacts to the environment through risks to terrestrial fauna would not be unacceptable, and therefore that the conditions were necessary and convenient to protect the environment.

114. I agreed with the Department's recommendations and was satisfied that such conditions were necessary and convenient for the protection of terrestrial fauna species (listed at paragraphs 106 and 107) from the direct and indirect impacts of the proposed action. I therefore decided to attach such conditions to the approval.

#### **Human health**

115. Departmental briefing advised that the proposed action would result in the generation of radioactive material which can present a human health risk. The primary pathways of radiation exposure include:
- direct external gamma radiation
  - inhalation of radon gas
  - inhalation of dust containing radionuclides
  - ingestion of radioactive material
  - ingestion of bush tucker.
116. Departmental briefing advised that the proponent had undertaken radiation impact assessments and modelling relating to radiation exposure and radionuclide movement for the proposed action. The WA Radiological Council and the Department of Mines and Petroleum will monitor radiological conditions, the implementation of relevant management practices and compliance with regulatory public and occupational dose limits. This will be undertaken through the implementation of a Radiation Management Plan under the *Radiation Safety Act 1975* (WA) and the *Mines Safety and Inspection Act 1994* (WA). The Departmental briefing also advised that the WA Radiological Council is an independent statutory authority appointed in WA to assist the WA Minister for Health to protect public health and to maintain safe practices in the use of radiation.
117. The preparation of a Radiation Management Plan prior to commencement of the action is a statutory obligation under the *Mines Safety and Inspection Regulations 1995* (WA). The Radiation Management Plan must be approved by both the WA Department of Mines, Industry Regulation and Safety (the **WA DMIRS**) and the WA Radiological Council to meet the provisions of the *Mines Safety and Inspection Regulations 1995* (WA) and the *Radiation Safety Act 1975* (WA).
118. Because of these requirements, the Departmental briefing advised that the WA EPA did not recommend a condition in relation to the preparation and implementation of the Radiation Management Plan. The Department agreed with this conclusion, and consequently did not recommend attaching any conditions to any approval of the proposed action that relate to the management of radiation.

119. The Appeals Convenor Report noted that submissions raised concerns about the health impacts to the community and workers from radiation exposure, including bush tucker and food production, and drinking water.
120. I noted that further information and analysis on human health impacts as a result of the proposed action was provided in section 3.4 and at Appendix 3 of the WA Assessment Report, and pages 27 – 31 of the Appeals Convenor Report.
121. The WA EPA concluded that the objectives for human health could be met, noting that the Radiological Council and the WA DMIRS would regulate:
- a. monitoring of radiological conditions,
  - b. implementation of as-low-as-reasonably-achievable management practices, and
  - c. compliance to regulatory public and occupational dose limits.
122. On the basis of the information in the Assessment Report, Appeals Convenor Report and WA EPA's conclusion, I agreed with the Department that this matter had been sufficiently investigated and would be adequately regulated, and therefore it was not necessary to attach any specific conditions to the approval of the action in relation to human health.

***Hydrological processes / Inland waters environmental quality***

123. I noted that the proposed action will require the construction of a bund and channel to divert natural flows around the operations, mine pit dewatering, groundwater abstraction, groundwater reinjection, surface water diversion and other onsite uses. Based on the information in the Assessment Report, impacts to water resources as a result of the proposed action may include:
- groundwater deficit
  - groundwater mounding (at reinjection sites)
  - changes to water chemistry and seepage from storage facilities
  - changes to water quality
  - changes in surface water flow regimes
  - impacts to terrestrial environments through use of groundwater in dust suppression activities
124. The WA Assessment Report noted that the WA Department of Water and Environmental Regulation (the **WA DWER**) advised that the hydrogeology of the area is well understood and that the available hydrogeological studies provide sufficient rigor and accuracy to enable an adequate assessment of impacts on the environment, other users and the aquifer system, and that it had no objections to the proposal.



125. The WA Assessment Report does note, however, that changes in groundwater quality may have the potential to affect subterranean fauna habitat down flow from the mine and tailings storage facilities.
126. I noted that further information and analysis on these matters was provided in sections 3.5 and 3.6, and at Appendix 3 of the Assessment Report respectively, and pages 23 – 27 of the Appeals Convenor Report.
127. I noted that the WA EPA concluded that the objectives for Hydrological Processes could be met, provided conditions were imposed that require independent expert review of the groundwater monitoring program prior to implementation and the results from that program on a regular basis; and the development of surface water and ground water management, monitoring and reporting plans (conditions 11 and 12 of the WA approval).
128. I noted that the Department recommended attaching conditions to the approval of the proposed action that required the approval holder to implement the conditions 11 and 12 of the WA Approval in respect of preparing a Baseline Survey Plan, obtaining independent expert review of the ground water monitoring program in the Baseline Survey Plan, and preparing and implementing a Hydrological Processes Monitoring and Management Plan. The Department was satisfied that these conditions, combined with a condition requiring compliance with WA approval condition 13 (discussed below), would ensure that impacts to the environment through risks to water resources would not be unacceptable, and therefore that the conditions were necessary and convenient to protect the environment.
129. I agreed with the Department's recommendations and was satisfied that such conditions were necessary and convenient for the protection of hydrological processes and inland environmental quality, being components of the environment, from the direct and indirect impacts of the proposed action. I therefore decided to attach conditions to the approval requiring the proponent comply with condition 11 and 12 of the WA approval.
130. Departmental briefing advised that the Appeals Convenor Report noted that submissions raised concerns about the impacts to neighbouring bores from the proposed wellfields, including at Dempsey Bore and No-Ibla.
131. Departmental briefing advised that groundwater abstraction management objectives are outlined in the WA Approval, and the Appeals Convenor Report also noted that the WA DWER would have further involvement in regulating the proposed action through its licensing role under the *Rights in Water and Irrigation Act 1914* (WA).
132. I noted that the WA EPA concluded that the objectives for Inland Waters Environmental Quality could be met if conditions were attached to the approval of the action requiring:
  - the development and implementation of a Surface Water Management and Monitoring Plan
  - the development and implementation of a Groundwater Management and Monitoring Plan, including provisions to prevent the abstraction of groundwater down flow from the

tailings storage facility within the boundaries of Yeelirrie Station for stock use, where uranium levels are above the low risk trigger value for stock listed in the *ANZECC Guidelines for Fresh and Marine Water Quality*, and

- the development and implementation of a program of work on uranium transport in groundwater from tailings.
133. I noted that the Department considered this matter had been sufficiently addressed through the WA Assessment Report, Appeals Convenor Report, and the conditions of the WA Approval and therefore did not require additional investigation or analysis.
134. The Department also recommended attaching a condition to the approval of the proposed action that required the approval holder to implement the relevant condition of the WA Approval (WA approval condition 13) which required the proponent to prepare and submit for the approval of the WA Minister a Surface Water and Groundwater Management and Monitoring Plans. The Department was satisfied that these conditions, combined with a condition requiring compliance with WA approval condition 11 and 12 (discussed above) would ensure that impacts to the environment through risks to water resources would not be unacceptable, and therefore that the conditions were necessary and convenient to protect the environment.
135. I agreed with the Department's recommendation and was satisfied that such conditions were necessary and convenient for the protection of surface water and groundwater management and monitoring, being components of the environment, from the direct and indirect impacts of the proposed action. I therefore decided to attach a condition to the approval requiring the proponent to comply with condition 13 of the WA approval.

### **Heritage**

136. I noted that the proposed action had the potential to result in an impact to heritage through destruction of heritage sites, culturally modified Kopi Gum trees (*Eucalyptus gypsophila*), and various flora and fauna bush tucker species.
137. The WA Assessment Report stated that the proposed action area was not currently inhabited by Aboriginal people. Surveys undertaken had catalogued the location of artefacts and cultural material or activities. The WA Department of Aboriginal Affairs reported there were two registered Aboriginal heritage sites located partially within the proposed impact area, and that four artefact scatters were recorded in proximity to the proposed action.
138. Departmental briefing advised that the proposed action area is located within one native title claim area, lodged by the Tjiwarl Native Title claimant group, which includes Aboriginal people from the Leonora and Wiluna regions.
139. The Appeals Convenor Report noted that the proponent had held meetings with the native title claimants, including Aboriginal people from Leonora and Wiluna regions since 2013. The meetings have included explanation of the proposed action and its environmental impacts on fauna and flora, and from dust, radiation and transport.

140. I noted that further information and analysis on the heritage impacts of the proposed action was provided in section 3.7 and at Appendix 3 of the Assessment Report, and pages 31 – 33 of the Appeals Convenor Report.
141. I noted that the WA EPA concluded that if the proposed action was approved, impacts on heritage could be managed by attaching a condition to the approval requiring the preparation and implementation of an Aboriginal Heritage Management Plan to minimise impacts as far as practicable to Aboriginal Heritage (WA approval condition 14).
142. I noted that the Department considered this matter had been sufficiently addressed through the WA Assessment Report, Appeals Convenor Report and the conditions of the WA Approval, therefore, did not require additional investigation or analysis.
143. Having regard to the WA EPA's assessment of how impacts on heritage may be managed, the Department recommended attaching a condition to the approval of the proposed action that required the approval holder to comply with WA Approval condition 14 in respect of the development of an Aboriginal Heritage Management Plan. The Department was satisfied that this condition would ensure that impacts to the environment through risks to heritage will not be unacceptable, and therefore that the conditions were necessary and convenient to protect the environment.
144. I agreed with the Department's recommendation and was satisfied that such a condition was necessary and convenient for the protection of Aboriginal Heritage, being a component of the environment, from the direct and indirect impacts of the proposed action. I therefore decided to attach a condition to the approval requiring the proponent to comply with condition 14 of the WA approval.

#### ***Rehabilitation and decommissioning***

145. Departmental briefing advised that mine closure is regulated by the WA DMIRS through the *Mining Act 1978* (WA), and through the *Mines Safety and Inspection Act 1994* (WA).
146. The development of a Mine Closure Plan is a statutory obligation under the *Mining Act 1978*. The Mine Closure Plan is required to be prepared in accordance with *Mine Closure Guidelines* which have been jointly prepared by the WA EPA and the WA DMIRS.
147. Departmental briefing advised the WA Approval included conditions requiring the proponent to prepare and submit a Mine Closure Plan and to undertake further research on the rate at which revegetation cover can be established to prevent erosion (condition 15 of the WA Approval).
148. A Conceptual Mine Closure Plan was included in the PER. The proponent stated that key objectives of the Mine Closure Plan are to:
- protect the health and safety of public and workforce
  - minimise off-site impacts
  - return the environment to as close to pre-mining as practicable



- establish self-sustaining ecosystems that do not require ongoing maintenance
  - develop and implement post-closure monitoring and contingency plan
  - develop a long-term conservation management plan for the Yeelirrie pastoral lease.
149. I noted that further information and analysis were provided in section 3.8 and at Appendix 3 of the Assessment Report, and pages 42 – 44 of the Appeals Convenor Report.
150. The WA EPA concluded that the objective of rehabilitation and decommissioning could be met provided that conditions were attached to the approval of the proposed action that required:
- the preparation of a mine closure plan that is regularly updated, effectively implemented, and made publicly available,
  - further research on the rate at which revegetation cover can be established, the effect of vegetation cover on the erosion rate and the need for alternative surface treatments to prevent erosion,
  - updates to the Landform Evolution Model using digital elevation modelling data, and
  - on-ground data collection to calibrate erosion models.
151. I noted that the Department considered that matters associated with the rehabilitation of the proposed impact area and decommissioning of the mine had been appropriately addressed through the Assessment Report, Appeals Convenor Report and the conditions of the WA Approval; therefore, did not require additional investigation or analysis.
152. Having regard to the WA EPA's conclusions regarding management of the rehabilitation and decommissioning of the mine, the Department recommended attaching a condition to the approval of the proposed action that requires the approval holder to comply with condition 15 of the WA approval in respect of the development of a Mine Closure Plan. The Department was satisfied that this condition would ensure that impacts to the environment associated with the decommissioning and rehabilitation of the mine would not be unacceptable, and therefore that the conditions were necessary and convenient to protect the environment.
153. I agreed with the Department's recommendation and was satisfied that such a condition was necessary and convenient for the protection of people (being a component of the environment) as well as other aspects the environment from impacts associated with the proposed action post-mining. I therefore decided to attach a condition to the approval requiring the proponent to comply with condition 15 of the WA approval.

### **Offsets**

154. In respect of the impact of the proposed action on subterranean fauna, the WA EPA noted that, should the decision be taken to approve the proposed action, an offset could take the form of further research to improve scientific understanding of subterranean fauna, including

to determine whether such species extend beyond the proposed impact area or whether their habitat is continuous and extensive beyond the impact area.

155. I noted that further information and analysis were provided in section 3.9 and at Appendix 3 of the Assessment Report, pages 5 – 23 and 35 – 38 of the Appeals Convenor Report and additional information.
156. As discussed above, while the Department's recommendation was that I attach the Attachment B1 conditions to any approval (in which case no offset would be required, as the proponent would be required, as a condition of approval, prior to commencement of the action, to provide suitable evidence that demonstrates the action will not result in the loss of any subterranean fauna species), it considers that there are reasonable grounds available on which I could form a view that the risks posed to subterranean fauna could be mitigated to an acceptable level by instead attaching the Attachment B2 conditions, particularly when the environmental risks are balanced against the social and economic benefits of the project proceeding. If I formed this view, the Department considers that the proponent should be required to offset any residual impact on subterranean fauna by developing and implementing a research program to further develop the understanding of the impact on subterranean fauna from mining and groundwater abstraction in the region, required under condition 16 of the WA approval.
157. As discussed previously under subterranean fauna, I formed the view that the Attachment B2 conditions were the most appropriate in the circumstances. These conditions, which contain strong mitigation measures that combined with the ongoing research programs into extending habitat for the species in question would mitigate the environmental risks posed to the subterranean fauna by the proposed action to an acceptable level while still ensuring that the social and economic benefits of the project are able to be realised.
158. However, I agreed with the Department that, because residual environmental risks to the subterranean fauna remain, I should attach a condition of approval requiring the proponent to comply with condition 16 of the WA approval that requires the proponent to develop and implement a subterranean fauna research program for the purpose of understanding the impacts of mining on subterranean fauna species. I was satisfied this is necessary and convenient for the protection of subterranean fauna species. I therefore decided to attach such a condition to the approval.

**Other aspects of the 'environment' considered in the Assessment Report**

159. Departmental briefing advised that the lifecycle and global implications of uranium mining such as the generation of nuclear waste, the wider nuclear cycle, nuclear incidents and proliferation of nuclear weapons was raised during the public comment period and in the Appeals Convenor Report. The Appeals Convenor and WA EPA considered that this issue was beyond the scope of the appeal.
160. Export of uranium from the proposed action would be addressed by comprehensive international frameworks and national legislative requirements for nuclear safety and security. The *Nuclear Non-Proliferation (Safeguards) Act 1987* (Cwth) applies to the export of

nuclear material and export permits are required under the *Customs (Prohibited Exports) Regulations 1958* (Cwth). Australia's safeguard arrangements include approvals from the Australian Safeguards and Non-proliferation Office.

161. Departmental briefing advised that section 3.4 of the WA Assessment Report noted the transport of radioactive material in WA could be adequately managed under the *Radiation Safety (Transport of Radioactive Substances) Regulations 2002* (WA). The Department agreed with this assessment. I also agreed with this assessment.

***Terrestrial environmental quality***

162. Departmental briefing advised that the WA EPA initially considered that the proposed action had the potential to impact on Terrestrial Environmental Quality as a result of erosion and sedimentation, flooding of water storage facilities, spills, seepage from the tailings storage facility, waste storage and dust deposition. The WA EPA also considered that mineralised material could be deposited outside the proposed action area during the hauling process.
163. Having regard to additional information provided by the proponent, the WA EPA determined that based on the proponent's management of impacts on terrestrial environmental quality, the proposed action was unlikely to have a significant impact on terrestrial environmental quality and could meet the objective for this factor. Accordingly, the WA EPA did not identify terrestrial environmental quality as a key environmental factor in its assessment. I noted that further information and analysis was provided in Appendix 3 of the WA Assessment Report.
164. I noted that the Department had considered the WA EPA's analysis in the WA Assessment Report and based on that analysis, agreed that there was sufficient evidence to support this conclusion. I agreed with this conclusion.

***Air quality and atmospheric gases***

165. Departmental briefing advised that the WA EPA initially considered that the generation of radionuclide-containing dust from mining, stockpiling, processing, crushing and milling, and SO<sub>2</sub>, NO<sub>2</sub>, CO and dust emissions from power generation and haulage had the potential to impact on the environment and human health. The WA EPA also considered that greenhouse gas emissions from diesel-fired power generation could impact on the environment.
166. Having regard to the WA EPA's evaluation of radionuclides under the key environmental factor of human health, operational measures proposed by the proponent, and modelling of air quality and greenhouse gas emissions, the WA EPA determined the proposed action was unlikely to have a significant impact on air quality and atmospheric gases and could meet the objective for this factor. Accordingly, the WA EPA did not identify air quality and atmospheric gases as a key environmental factor in its assessment. I noted that further information and analysis was provided in Appendix 3 of the WA Assessment Report.
167. I noted that the Department had considered the WA EPA's analysis in the Assessment Report and, based on that analysis, agreed that there is sufficient evidence to support this conclusion. I agreed with this conclusion.

### **Amenity**

168. Departmental briefing advised that the WA EPA also considered that the generation of dust and noise from land clearing, mining activities, stockpiling and transport may impact on sensitive receptors. No submissions were noted specifically in relation to the factor of amenity. Submissions received about dust were noted under the factors of human health, air quality and atmospheric gases.
169. The WA EPA determined that based on the distance between the proposed action and nearest residents, and the results of noise and air quality monitoring, the proposed action was unlikely to have a significant impact on amenity and could meet the objective for this factor. Accordingly, the WA EPA did not identify amenity as a key environmental factor in its assessment. I noted that further information and analysis is provided in Appendix 3 of the WA Assessment Report.
170. I noted that the Department had considered the WA EPA's analysis in the WA Assessment Report and based on that analysis, agreed that there was sufficient evidence to support this conclusion. I agreed with this conclusion.

### **Conclusion on sections 21 and 22A**

171. As set out above, I considered the primary risks to the environment posed by the proposed action and agreed that they related to the potential impacts on subterranean fauna species that were only known to occur within the project area, and the only known Western genotype population of *Atriplex Yeelirrie*. However, for the reasons set out above, I considered that these risks could be mitigated to an acceptable level by the conditions I decided to attach to the approval.
172. I was also satisfied that other risks to the environment posed by the proposed action could be adequately mitigated by attaching conditions requiring compliance with relevant conditions of the WA approval (as set out in the analysis above), in addition to the conditions recommended by the Department.
173. On this basis, I was satisfied that the proposed action would not have an unacceptable impact on the environment, provided that it was taken in accordance with the conditions I decided to attach to the approval. I therefore decided to approve the proposed action for the purposes of sections 21 and 22A, subject to the conditions set out above.

### **Sections 20 and 20A - Listed migratory species**

174. I noted that sections 20 and 20A of the EPBC Act prohibit the taking of an action if that action has, will have, or is likely to have, a significant impact on a listed migratory species.
175. Departmental briefing advised that at the time of the controlled action decision, sections 20 and 20A were determined to be controlling provisions for the proposed action on the basis that the proposed action was likely to result in a significant impact to species that were listed



migratory species under the EPBC Act. The listed migratory species determined at the time of the referral decision as likely to be significantly impacted by the proposed action were:

- Rainbow bee-eater (*Merops ornatus*) – since delisted
- Great egret (*Ardea alba* = *Ardea modesta*) – since delisted
- Fork-tailed swift (*Apus pacificus*)
- Oriental plover (*Charadrius veredus*)
- Malleefowl (*Leipoa ocellata*) – delisted, although still a listed threatened species

176. Departmental briefing advised that on 26 November 2013 (after the controlled action decision), the Malleefowl was removed from the list of migratory species under the EPBC Act (though the Malleefowl remained a listed threatened species – refer to discussion on sections 18 and 18A). Subsequently, the Rainbow bee-eater and Great egret were also removed from the List of Migratory Species on 14 April 2016. As these species were no longer listed migratory species for the purposes of the EPBC Act (and therefore are no longer matters protected by sections 20 and 20A) impacts on these species were not considered further for the purposes of the assessment of the impact of the proposed action on listed migratory species.
177. Departmental briefing advised that the WA Assessment Report outlined that the Fork-tailed Swift was found during surveys conducted at the proposal site, but that the species was recognised as a summer migrant found throughout Australia. Accordingly, the WA Assessment Report considered that the Fork-tailed Swift was unlikely to be critically dependant on habitat in the proposed impact area.
178. The Oriental Plover was not discussed in the WA Assessment Report. I noted that the Department stated that analysis within the PER found that the Oriental Plover was unlikely to occur in the proposed impact area, except possibly as a vagrant, as the species was not recorded as present during either the time the species is known to be in Australia or when the wetlands were inundated within the proposal site.

#### **Conclusion on sections 20 and 20A**

179. I noted and accepted the conclusion in the WA Assessment Report that the proposed action was not expected to result in an unacceptable or unsustainable impact on the Fork-tailed Swift. Having considered the information in the Departmental briefing, including the WA EPA's assessment of the proposed action, I agreed with this conclusion.
180. I also noted that the Department had also considered the information in the PER regarding the likely impacts of the proposed action on the Oriental Plover and was satisfied that the proposed action would not result in an unacceptable impact on this species. Having considered the information in the Departmental briefing, including the PER, I agreed with this conclusion.

181. I further agreed with the Department's view that it was not necessary to attach any specific conditions to the approval of the action to protect listed migratory species.
182. For these reasons, I was satisfied that the proposed action would not have any unacceptable impacts on listed migratory species. I therefore decided to approve the proposed action for the purposes of the controlling provisions in sections 20 and 20A of the EPBC Act, without conditions.

#### **Sections 18 and 18A - Listed threatened species and ecological communities**

183. I noted that sections 18 and 18A prohibit the taking of an action if that action has, will have, or is likely to have, a significant impact on a listed threatened species or ecological community.
184. Departmental briefing advised that at the time of the controlled action decision, sections 18 and 18A were determined to be controlling provisions for the proposed action on the basis that the proposed action was likely to result in a significant impact to five species that are listed threatened species under the EPBC Act. The listed threatened species at the time of the controlled action decision that were determined as likely to be significantly impacted were:
- Slender-billed thornbill (Western) (*Acanthiza iredalei iredalei*) – since delisted
  - Malleefowl (*Leipoa ocellata*) – listed as vulnerable
  - Greater bilby (*Macrotis lagotis*) - listed as vulnerable
  - Princess parrot (*Polytelis alexandrae*) – listed as vulnerable
  - Great Desert Skink (*Liopholis kintorei*) – listed as vulnerable
185. On 14 December 2013 (after the controlled action decision), the slender-billed thornbill (Western) was removed from the list of threatened species under the EPBC Act. As this species is no longer a listed threatened species for the purposes of the EPBC Act (and therefore are no longer matters protected by sections 18 and 18A) impacts on this species were not considered further for the purposes of the assessment of the impact of the proposed action on listed threatened species.
186. Other EPBC Act listed threatened species referred to in the Assessment Report include the Black-flanked rock-wallaby (*Petrogale lateralis lateralis*) uplisted to endangered on 24 November 2016, and the shield-backed trapdoor spider (*Idiosoma nigrum*) listed as vulnerable on 26 April 2013.
187. Departmental briefing advised that under section 158A, approval process decisions are not affected by listing events that occur after a section 75 decision is made. Therefore, the impact of the action on the:
- a. shield-backed trapdoor spider (*Idiosoma nigrum*) could only be assessed as part of the assessment of the impact of the proposed action on the 'environment', and

- b. Black-flanked rock-wallaby could only be assessed in accordance with its listing status under the EPBC Act at the time of the controlled action decision, which was vulnerable.

188. I noted that further information and analysis on the impacts to listed threatened species and communities was provided in section 3.3, section 4 and Appendix 3 of the WA Assessment Report, pages 38 – 39 of the Appeals Convenor Report, and additional information.

***Malleefowl (Leipoa ocellata)***

189. Departmental briefing advised that the Malleefowl is a ground dwelling bird found in semi-arid to arid shrublands and low woodlands, dominated by mallee and/or acacias. They have a large home range from one to several square kilometres (km<sup>2</sup>), and home ranges can overlap considerably.

190. At the referral stage of the EPBC Act assessment, I noted that the Department determined that the proposed action was likely to have a significant impact on Malleefowl as a result of the clearance of potential habitat for the species.

191. The Assessment Report stated Malleefowl was confirmed as present during field surveys approximately 2 km from the proposal boundary, and two Malleefowl mounds were located within the proposal site. The two Malleefowl mounds would be disturbed as a result of the proposed action.

192. The WA EPA noted that due to the existence of continuous and extensive habitat outside the proposal site, the objective for terrestrial fauna, including the Malleefowl, could be met provided conditions were imposed to manage direct and indirect localised impacts on terrestrial fauna and their habitat.

193. Further information and analysis of the impacts of the proposed action on Malleefowl was also provided in sections 3.3 and 4, and at Appendix 3 of the WA Assessment Report and pages 38 – 39 of the Appeals Convenor Report.

194. I noted that the Department had considered the WA EPA's assessment in the context of the Recovery Plan for the Malleefowl, and considered that in the absence of an offset, the clearing of Malleefowl habitat as a result of the proposed action could cause a decline in the known area of Malleefowl habitat and would therefore be inconsistent with the recovery plan for this species. I agreed with this conclusion and the reasons given for it.

195. I noted that the Department recommended attaching a condition to the approval of the proposed action that, prior to the commencement of the action, required the approval holder to:

- a. legally secure an offset area(s) containing Malleefowl habitat that was equal to or greater in size and quality to the Malleefowl habitat that would be lost as a result of the proposed action, and

- b. to submit for my approval, a Malleefowl Offset Strategy detailing the environmental attributes of the offset area(s). The approval holder must not commence the action unless I had approved the Malleefowl Offset Strategy in writing.
196. The Department was satisfied that these offset conditions would result in no net loss of Malleefowl habitat as a result of the proposed action and, therefore, that there would be no decline in the known area of occupied or mapped potential Malleefowl habitat if the proposed action were approved subject to these offset conditions.
197. I agreed with the Department's recommendation and was satisfied that such conditions were necessary and convenient for the protection of Malleefowl from impacts of the proposed action.
198. I also noted that, consistent with the analysis of impacts to the environment for the purposes of section 21 and 22A above, the Department had also recommended attaching a condition to the approval of the proposed action that would require the approval holder to comply with condition 10 of the WA Approval which required the proponent to prepare and implement a terrestrial fauna management plan. This management plan would ensure that the proponent was required to avoid, where possible, and minimise direct and indirect impacts as far as practicable, on terrestrial fauna species within the impact area, including the Malleefowl.
199. On this basis, I noted that the Department was satisfied that, provided the proposed action was undertaken in accordance with these proposed conditions, it would not have an unacceptable impact on the Malleefowl, and therefore the conditions were necessary and convenient to protect the species.
200. I agreed with the Department's conclusion and decided to attach these conditions to the approval.
201. I was satisfied that, provided the proposed action was undertaken in accordance with the conditions I decided to attach to the approval, it would not have an unacceptable impact on Malleefowl.

***Greater bilby (Macrotis lagotis)***

202. Departmental briefing advised that the Greater bilby is a medium-sized solitary marsupial that shelters in burrows during daylight. The species is an omnivore that primarily digs for food such as *lepidopteran* larvae, termites, ants, grasshoppers, spiders and beetles, and other items such as seeds, bulbs, and fungi.
203. The remaining populations of the Greater bilby occupy three main habitats: open tussock grassland on uplands and hills; *Acacia aneura* (mulga) woodland/shrubland growing on ridges and rises; and hummock grassland in plains and alluvial areas. Males range more widely than females from their home burrows, and home ranges can vary considerably in size in different locations. The mean female home range is 0.18 km<sup>2</sup>, and the mean male home range is 3.16 km<sup>2</sup>. The Greater bilby can use up to 18 of these burrows concurrently over several months, as well as construct a new burrow on average every two and a half weeks.



204. The PER stated that suitable habitat exists within the proposed impact area in the form of spinifex sandplains although no records of the species was recorded during targeted surveys. There are anecdotal records of the species at Rosslyn Hill and Wiluna, located approximately 120 km north of the proposed impact area, and the species is thriving at Lorna Glen Conservation Reserve located 180 km north-west of the proposed impact area.
205. I noted that further information and analysis of the impacts of the proposed action on Greater bilby was provided in section 4, and at Appendix 3 of the Assessment Report and pages 38 – 39 of the Appeals Convenor Report.
206. While there were no bilbies recorded during surveys, suitable habitat was present in the proposed impact area, and it was possible that individuals may move through.
207. Departmental briefing advised that the WA Assessment Report indicated the Greater bilby was not recorded during targeted surveys, and the habitat type for the Greater bilby that was likely to be affected by the proposal, existed as continuous and extensive habitat outside the area of direct and potential indirect impact. For this reason, the WA EPA was satisfied the objective for terrestrial fauna, including the Greater bilby, could be met provided conditions were imposed to manage direct and indirect localised impacts on terrestrial fauna and their habitat.
208. I noted that the Department had considered the WA EPA's assessment in the context of the *Recovery Plan for the Greater bilby and Conservation Advice for Greater Bilby*, and considered that the impact of the proposed action on the Greater bilby, as a listed threatened species, had been appropriately addressed, and the measures necessary to avoid and mitigate impacts on Greater bilby were adequately addressed by the conditions of the WA Approval.
209. I noted that the Department recommended attaching a condition to any approval of the proposed action that would require the approval holder to comply with condition 10 of the WA Approval which required the proponent to prepare and implement a terrestrial fauna management plan. This management plan would ensure that the proponent was required to avoid, where possible, and minimise direct and indirect impacts as far as practicable on terrestrial fauna species, including the Greater bilby.
210. I agreed with the Department's recommendation and was satisfied that such a condition was necessary and convenient for the protection of Greater bilby from impacts of the proposed action. I therefore decided to attach a condition to the approval requiring the proponent to comply with condition 10 of the WA approval.
211. On this basis, I was satisfied that, provided the proposed action was undertaken in accordance with the conditions I decided to attach to the approval, it would not have an unacceptable impact on the Greater bilby.

***Princess parrot (Polytelis alexandrae)***

212. Departmental briefing advised that the Princess parrot is a medium-sized slender parrot growing to 40–45 cm long. It has pointed backswept wings and a long tapering tail. Plumage is