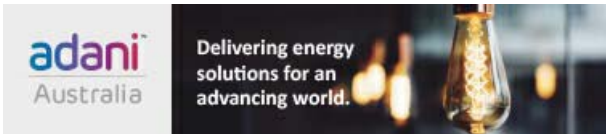


Date : 9/04/2019 3:54:43 PM
From : "Lucas Dow"
To : "MERRICK Jamie"
Cc : "Paul Fennelly"
Subject : 18/4 Meeting Groundwater Dependent Ecosystem Management Plan (GDEMP)
Attachment : DG DES re GDEMP - 20190409.pdf;image163210.jpg;

Hi Jamie,
As per our meeting of yesterday please find attached our response to your correspondence.
Regards,
Lucas
LucasDow
CEO - Adani Mining
E ch4p4(6) Personal informatio
P office: +61 7 3223 4800|direct: +61 7 Personal i mobile: +61) Personal in
A Level 25, 10 Eagle Street, Brisbane, QLD, 4000
P GPO Box 2569, Brisbane, QLD, 4001
W adaniaustralia.com



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9 April 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane QLD 4000

By email: jamie.merrick@des.qld.gov.au

Dear Jamie

Adani Mining Pty Ltd – Groundwater Dependent Ecosystem Management Plan

We refer to your correspondence of 5 April 2019 in relation to the Groundwater Dependent Ecosystems Management Plan (**GDEMP**) and also the opportunity for us to meet on 8 April 2019.

As you are aware, we have been working with both the Federal and State Departments in relation to the finalisation of this plan for more than two years. Unfortunately, despite repeated requests from Adani, the Queensland Government has been unwilling to provide commitments in relation to timing and process to finalise outstanding management plans. This lack of clarity has been evident throughout the Department's approach to finalising the Black-Throated Finch Management Plan (**BTFMP**), which is still dragging on and which has been the subject of last minute interventions, such as the highly questionable review led by Professor Wintle about which we have raised serious concerns.

In relation to the CSIRO and GeoScience Australia report, as we understand it, this was work commissioned for use by both the Federal and State Department; accordingly we find it inexplicable that the Queensland Government is now stating that it does not have access to the report. We would have thought it reasonable that the Queensland Government would have had sufficient foresight and planning to ensure the timely delivery of the report in order to enable the finalisation of the plan. Accordingly, for this to now be offered up as an excuse for continued delay is not reasonable from our perspective.

Absent the Queensland Government detailing a defined process and timing to finalise the GDEMP, the requirements are unclear and it seems the goal posts continue to shift in the same way we have experienced with finalisation of the BTFMP. More specifically, the approach undertaken by the State in assessing the BTFMP has been reflective of the State's apparent desire to create two versions of the same plan. Accordingly, we assumed a similar approach was intended for the GDEMP. Nonetheless, the GDEMP was submitted to the Department on 9 April 2019.

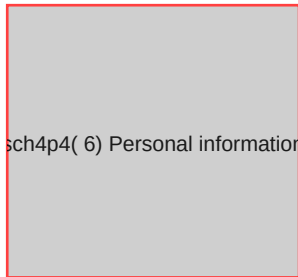
Adani Mining Pty Ltd
Level 25
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GPO Box 2569, Brisbane QLD 4001
Australia

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www.adaniaustralia.com



We remain committed to working collaboratively to finalise these plans so that we can get on with the task of delivering thousands of jobs for Queenslanders.

Yours sincerely



Lucas Dow
Chief Executive Officer

3 May 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane Qld 4000

By email: jamie.merrick@des.qld.gov.au

Dear Mr Merrick

Adani Mining Pty Ltd - BTFMP

We refer to previous correspondence in relation to the Black-throated Finch Management Plan (**BTFMP**) and in particular to your Department's letter of 2 May 2019.

The letter states (emphasis added):

*"The department is of the view that it **cannot approve the BTFMP** in its current form because the document does not meet the requirements of conditions 16, 18 and 19 of the Carmichael Coal Mine environmental authority EMPL01470513 **for the reasons identified in Attachment A** to this letter."*

It appears that the letter and its attachment together form the Department's decision in relation to approval of the BTFMP.

Can you please urgently confirm whether your letter constitutes the Department's approval decision and, if so, whether you intend to provide further reasons for that decision (**Question 1**)?

Your letter goes on to say that Adani may submit a new or revised BTFMP at any time. To facilitate this, we would like confirmation that the matters addressed in Attachment A to your letter represent the final and complete list of issues that the Department wishes to see address with respect to the BTFMP as submitted (**Question 2**).

We ask that you provide a clear commitment from the Department with respect to the timing of any future steps required to obtain approval. While we appreciate some flexibility in any process, clearly an endless cycle of review and comment is untenable. Further, in order to properly consider and respond to the matters set out in Attachment A, we would require a more comprehensive understanding of the Department's position, including the rationale for the approach you have taken.

Adani Mining Pty Ltd
Level 25
10 Eagle Street, Brisbane QLD 4000
GPO Box 2569, Brisbane QLD 4001
Australia

Tel +61 7 3223 4800
www.adaniaustralia.com

In relation to Attachment A, we would like to understand (**Question 3**):

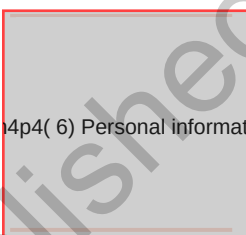
- (a) What is the scientific basis and evidence on which the Department relies to support each one of the recommendations?
- (b) To the extent any recommendations are based on scientific views, identify the experts on whom you rely and the facts that demonstrate their qualification to provide a view on these matters, including their qualifications.
- (c) Given the long history of engagement on the BTFMP and our comprehensive correspondence to you nearly seven weeks ago, why were these matters not raised in previous iterations of the draft BTFMP? What has influenced the Department's change in approach?
- (d) Explain how the consideration that you state was given to the Final Report of Prof. Wintle and his group was applied with respect to each of the issues and recommendations.
- (e) How do each of the recommendations relate to requirements of the EA?
- (f) What consideration was given to the detailed submissions provided by Adani on 15 March 2019 and further on 2 April 2019? How was this material weighed?
- (g) What authority is the DES relying upon, particularly what is the relevant legislative power and relevant section or sections (i.e. the specific enactment/s or regulation/s), to request the changes contained in your most recent letter?

We ask for your response to our questions 1 and 2 by **close of business Tuesday, 7 May 2019**.

We ask for your response to question 3 by **close of business Wednesday, 8 May 2019**.

This will assist us to prepare for the meeting with your Department scheduled for Friday, 10 May 2019.

Yours sincerely



Lucas Dow
Chief Executive Officer

Our Ref: CTS



Department of
Environment and Science

Private and Confidential

7 May 2019

Mr Lucas Dow
Chief Executive Officer
Adani Mining Pty Ltd
Level 25, 10 Eagle Street
Brisbane QLD 4000

Dear Mr Dow

Black-throated Finch Management Plan (BTFMP)

I refer to your letter dated 3 May 2019, which responds to the department's letter dated 2 May 2019.

Responses to the three questions posed in your letter are as follows.

Question 1

I confirm that the department's 2 May 2019 letter constitutes notice to Adani Mining Pty Ltd (**Adani**) that the department cannot approve the current version of the draft BTFMP.

The department's reasons for its decision are set out in the document described as 'Attachment A' and enclosed with the 2 May 2019 letter (**Attachment A**). The letter and attachment were the subject of discussions with Adani representatives at a meeting on 2 May 2019. The department does not propose to provide any further reasons for the decision.

Question 2

You will appreciate that as a matter of administrative law I am unable to fetter the discretion of a delegate who may be tasked with considering whether to approve any future draft of the BTFMP.

However, I am advised that:

- (a) the matters described in the column headed 'Requirement' in Attachment A are a comprehensive summary of the additional matters the department considers need to be addressed in the BTFMP; and
- (b) the department does not expect to identify any additional issues that would need to be addressed in the Plan.

I am further advised that the department is likely to view favourably a revised draft BTFMP that includes all of the information and commitments described in the 'Requirement' column.

For this reason, the timing of any further steps in relation to the BTFMP is now very much within Adani's control. The department will review any revised draft of the BTFMP that Adani chooses to submit as quickly as possible.

Question 3

I am surprised by question 3(c), which asks why matters set out in Attachment A were not previously raised with Adani. I am advised that in fact these and related matters have been the subject of previous communication between Adani and the department.

In response to question 3(e), the relationship between the conditions of EPML01470513 and the content in the columns in Attachment A headed 'Issue' and 'Requirement' is clear on the face of the document.

In response to question 3(g), conditions I6 and I9 of EPML01470513 were conditions stated for the proposed environmental authority for the Carmichael Mine in the Coordinator-General's report for the environmental impact statement (EIS) for the Carmichael Coal Mine and Rail Project. The Coordinator-General's power to state such conditions is conferred by section 47C of the *State Development and Public Works Organisation Act 1971* (SDPWO Act). Section 205 of the *Environmental Protection Act 1994* provides that if the administering authority approves an environmental authority application relating to a coordinated project under the SDPWO Act and makes the approval subject to conditions, the administering authority must impose any condition for the authority stated in the Coordinator-General's report for the EIS.

The other questions that form part of question 3 inquire about the evidence relied on by the delegate in reaching her decision and the weight she gave to different pieces of evidence. Those are matters for the delegate. As I have already stated, Attachment A sets out in detail the reasons why the delegate was unable to approve the current draft BTFMP, and provides a clear path for Adani to consider if it wishes to revise and resubmit the BTFMP.

Yours sincerely

[Redacted signature box]

Jamie Merrick
Director-General

715 119

Date : 3/05/2019 4:38:47 PM

From : "Lucas Dow"

To : "MERRICK Jamie"

Subject : BTFMP Status and Response

Attachment : DES re BTFMP - 20190503.pdf;

Jamie,

Please find attached latest BTFMP correspondence.

Thanks

Lucas

Published on DES Disclosure Log
RTI Act 2009

3 May 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane Qld 4000

By email: jamie.merrick@des.qld.gov.au

Dear Mr Merrick

Adani Mining Pty Ltd - BTFMP

We refer to previous correspondence in relation to the Black-throated Finch Management Plan (**BTFMP**) and in particular to your Department's letter of 2 May 2019.

The letter states (emphasis added):

*"The department is of the view that it **cannot approve the BTFMP** in its current form because the document does not meet the requirements of conditions 16, 18 and 19 of the Carmichael Coal Mine environmental authority EMPL01470513 **for the reasons identified in Attachment A** to this letter."*

It appears that the letter and its attachment together form the Department's decision in relation to approval of the BTFMP.

Can you please urgently confirm whether your letter constitutes the Department's approval decision and, if so, whether you intend to provide further reasons for that decision (**Question 1**)?

Your letter goes on to say that Adani may submit a new or revised BTFMP at any time. To facilitate this, we would like confirmation that the matters addressed in Attachment A to your letter represent the final and complete list of issues that the Department wishes to see address with respect to the BTFMP as submitted (**Question 2**).

We ask that you provide a clear commitment from the Department with respect to the timing of any future steps required to obtain approval. While we appreciate some flexibility in any process, clearly an endless cycle of review and comment is untenable. Further, in order to properly consider and respond to the matters set out in Attachment A, we would require a more comprehensive understanding of the Department's position, including the rationale for the approach you have taken.

Adani Mining Pty Ltd
Level 25
10 Eagle Street, Brisbane QLD 4000
GPO Box 2569, Brisbane QLD 4001
Australia

Tel +61 7 3223 4800
www.adaniaustralia.com

In relation to Attachment A, we would like to understand (**Question 3**):

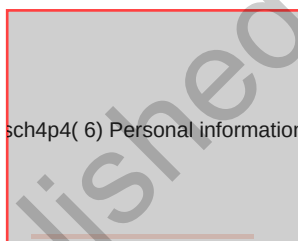
- (a) What is the scientific basis and evidence on which the Department relies to support each one of the recommendations?
- (b) To the extent any recommendations are based on scientific views, identify the experts on whom you rely and the facts that demonstrate their qualification to provide a view on these matters, including their qualifications.
- (c) Given the long history of engagement on the BTFMP and our comprehensive correspondence to you nearly seven weeks ago, why were these matters not raised in previous iterations of the draft BTFMP? What has influenced the Department's change in approach?
- (d) Explain how the consideration that you state was given to the Final Report of Prof. Wintle and his group was applied with respect to each of the issues and recommendations.
- (e) How do each of the recommendations relate to requirements of the EA?
- (f) What consideration was given to the detailed submissions provided by Adani on 15 March 2019 and further on 2 April 2019? How was this material weighed?
- (g) What authority is the DES relying upon, particularly what is the relevant legislative power and relevant section or sections (i.e. the specific enactment/s or regulation/s), to request the changes contained in your most recent letter?

We ask for your response to our questions 1 and 2 by **close of business Tuesday, 7 May 2019**.

We ask for your response to question 3 by **close of business Wednesday, 8 May 2019**.

This will assist us to prepare for the meeting with your Department scheduled for Friday, 10 May 2019.

Yours sincerely



sch4p4(6) Personal information

Lucas Dow
Chief Executive Officer

Date : 26/04/2019 11:06:10 AM

From : "Helena Steketee"

To : "MERRICK Jamie"

Subject : Correspondence from Lucas Dow - CEO Adani Mining

Attachment : DG DES re Environmental Management Plans - 20190426.pdf;image001.jpg;

Dear Director General

Please find attached correspondence from Lucas Dow for your attention.

Kind regards

HelenaSteketee

EA to CEO Mine & Administration Officer

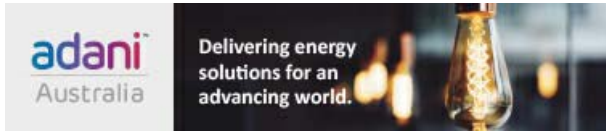
E sch4p4(6) Personal information

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26 April 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane QLD 4000

By email: jamie.merrick@des.qld.gov.au

Dear Jamie

I write to seek an urgent meeting with you in regard to Adani's pending environmental management plans. We had previously requested a meeting with your officials, the request and timing of that meeting was predicated on what we believed was a reasonable timeframe for DES to have substantively concluded their respective reviews of the Groundwater Dependent Ecosystems Management Plan (GDEMP) and also the Black Throated Finch Management Plan (BTFMP).

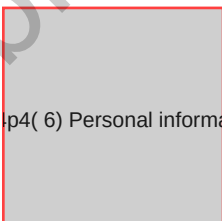
Based on correspondence provided by Melissa Wells dated 24 April 2019, it now appears that nothing substantive has been progressed in relation to finalising the GDEMP. By way of comparison, the Federal Department of Environment and Energy provided feedback to Adani within three business days of having received the CSIRO and Geoscience Australia report. DES has now had ten business days and we are yet to receive any information from DES in this regard.

Furthermore, we continue to wait on advice from DES in relation to the BTFMP, which the Department had committed to provide on 12 April 2019.

We also note that DES continues to refuse to provide any indication as to timing with respect to the finalisation of these management plans. We do not consider this to be reasonable given that DES has had more than 18 months of engagement and involvement with these plans, so the subject matter is certainly not new. We are simply seeking a fair and transparent process inclusive of timing – the fact that DES is unable to provide an indication of timing is deeply troubling.

Please advise as to your availability to meet as soon as possible as we remain deeply concerned as to the manner in which the finalisation of our management plans is being approached.

Yours sincerely



Lucas Dow
Chief Executive Officer Mining

Adani Mining Pty Ltd
Level 25
10 Eagle Street, Brisbane QLD 4000
GPO Box 2569, Brisbane QLD 4001
Australia

Tel +61 7 3223 4800
Fax +61 7 3223 4850
www.adaniaustralia.com

Published on DES Disclosure Log
RTI Act 2009

Date : 18/04/2019 11:17:33 AM

From : "Paul Fennelly"

To : "ELLWOOD Dean"

Cc : "MERRICK Jamie" , "WELLS Melissa" , "CAGNEY Justin" , "Lucas Dow" , "Hamish Manzi"

Subject : DES Advancement of Adani's Environment Management Plans

Attachment : image001.jpg;

Dean

I refer to the letter sent by Lucas Dow to Jamie Merrick on 12 April relating to the GDEMP. The penultimate paragraph states – “we ask again that the Department immediately provide us with clarity as to the next steps to apply these principles and the timing of each step to the approval.” We are yet to receive a response from the Department of Environment and Science.

Yesterday I wrote to Melissa Wells stating - *Juliana and yourself indicated in our teleconference (Tuesday 9 April) that you would be sending a document/letter to Adani Australia later in the week. You described this document as containing further issues and clarifications relating to the Black Throated Finch Management Plan that DES intends to raise with Adani. Could you please clarify when the document will be sent to Adani.* We are yet to receive a response for Melissa Wells or Justin Cagney who also received this email.

Adani Australia is eager to progress the GDEMP, GMMP and BTFMP so that we can get on with the task of delivering thousands of jobs for Queenslanders, accordingly could you please as a matter of urgency advise me when the Department is able to meet with representatives of Adani.

Regards

Paul

Paul Fennelly

Head - Government and Corporate Affairs

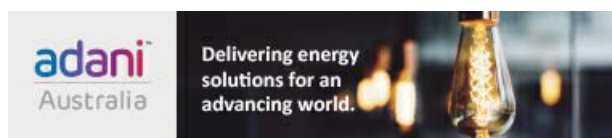
E sch4p4(6) Personal information

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Date : 9/04/2019 3:57:26 PM
From : "MERRICK Jamie"
To : "ELLWOOD Dean" , "WELLS Melissa" , "LAWRENCE Rob"
Subject : FW: Groundwater Dependent Ecosystem Management Plan (GDEMP)
Attachment : DG DES re GDEMP - 20190409.pdf;image163210.jpg;

FYI

From: Lucas Dow <[REDACTED]>

Sent: Tuesday, 9 April 2019 3:55 PM

To: MERRICK Jamie

Cc: Paul Fennelly

Subject: Groundwater Dependent Ecosystem Management Plan (GDEMP)

Hi Jamie,

As per our meeting of yesterday please find attached our response to your correspondence.

Regards,

Lucas

LucasDow

CEO - Adani Mining

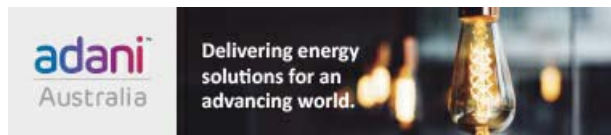
E [REDACTED]

P office: +61 7 3223 4800|direct: +61 7 [REDACTED] mobile: +61 [REDACTED]

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9 April 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane QLD 4000

By email: jamie.merrick@des.qld.gov.au

Dear Jamie

Adani Mining Pty Ltd – Groundwater Dependent Ecosystem Management Plan

We refer to your correspondence of 5 April 2019 in relation to the Groundwater Dependent Ecosystems Management Plan (**GDEMP**) and also the opportunity for us to meet on 8 April 2019.

As you are aware, we have been working with both the Federal and State Departments in relation to the finalisation of this plan for more than two years. Unfortunately, despite repeated requests from Adani, the Queensland Government has been unwilling to provide commitments in relation to timing and process to finalise outstanding management plans. This lack of clarity has been evident throughout the Department's approach to finalising the Black-Throated Finch Management Plan (**BTFMP**), which is still dragging on and which has been the subject of last minute interventions, such as the highly questionable review led by Professor Wintle about which we have raised serious concerns.

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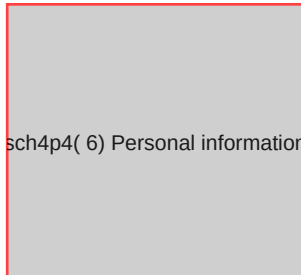
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We remain committed to working collaboratively to finalise these plans so that we can get on with the task of delivering thousands of jobs for Queenslanders.

Yours sincerely



Lucas Dow
Chief Executive Officer

Date : 3/05/2019 4:47:58 PM
From : "MERRICK Jamie"
To : "ELLWOOD Dean" , "LAWRENCE Rob"
Subject : Fwd: BTFMP Status and Response
Attachment : DES re BTFMP - 20190503.pdf;ATT00001.htm;
Please see below.

Let's discuss strategy for response. Potentially with legal support.

Jamie

Sent from my iPhone

Begin forwarded message:

From: Lucas Dow <[h4p4(6) Personal informati<[h4p4(6) Personal informati<
Date: 3 May 2019 at 4:38:47 pm AEST
To: "jamie.merrick@des.qld.gov.au" <jamie.merrick@des.qld.gov.au>
Subject: BTFMP Status and Response

Jamie,
Please find attached latest BTFMP correspondence.

Thanks
Lucas

3 May 2019

Private & Confidential

Mr Jamie Merrick
Director-General
Department of Environment and Science
Queensland Government
400 George Street
Brisbane Qld 4000

By email: jamie.merrick@des.qld.gov.au

Dear Mr Merrick

Adani Mining Pty Ltd - BTFMP

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The letter states (emphasis added):

*"The department is of the view that it **cannot approve the BTFMP** in its current form because the document does not meet the requirements of conditions 16, 18 and 19 of the Carmichael Coal Mine environmental authority EMPL01470513 **for the reasons identified in Attachment A** to this letter."*

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Can you please urgently confirm whether your letter constitutes the Department's approval decision and, if so, whether you intend to provide further reasons for that decision (**Question 1**)?

Your letter goes on to say that Adani may submit a new or revised BTFMP at any time. To facilitate this, we would like confirmation that the matters addressed in Attachment A to your letter represent the final and complete list of issues that the Department wishes to see address with respect to the BTFMP as submitted (**Question 2**).

We ask that you provide a clear commitment from the Department with respect to the timing of any future steps required to obtain approval. While we appreciate some flexibility in any process, clearly an endless cycle of review and comment is untenable. Further, in order to properly consider and respond to the matters set out in Attachment A, we would require a more comprehensive understanding of the Department's position, including the rationale for the approach you have taken.

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In relation to Attachment A, we would like to understand (**Question 3**):

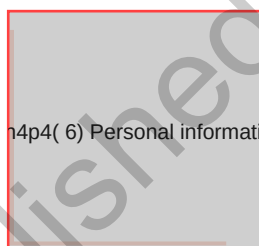
- (a) What is the scientific basis and evidence on which the Department relies to support each one of the recommendations?
- (b) To the extent any recommendations are based on scientific views, identify the experts on whom you rely and the facts that demonstrate their qualification to provide a view on these matters, including their qualifications.
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- (d) Explain how the consideration that you state was given to the Final Report of Prof. Wintle and his group was applied with respect to each of the issues and recommendations.
- (e) How do each of the recommendations relate to requirements of the EA?
- (f) What consideration was given to the detailed submissions provided by Adani on 15 March 2019 and further on 2 April 2019? How was this material weighed?
- (g) What authority is the DES relying upon, particularly what is the relevant legislative power and relevant section or sections (i.e. the specific enactment/s or regulation/s), to request the changes contained in your most recent letter?

We ask for your response to our questions 1 and 2 by **close of business Tuesday, 7 May 2019**.

We ask for your response to question 3 by **close of business Wednesday, 8 May 2019**.

This will assist us to prepare for the meeting with your Department scheduled for Friday, 10 May 2019.

Yours sincerely



Lucas Dow
Chief Executive Officer

Date : 4/04/2019 1:33:41 PM

From : "WELLS Melissa"

To : "MERRICK Jamie" , "ELLWOOD Dean"

Cc : "HALLIDAY Genevieve" , "MCCOSKER Juliana"

Subject : PRINTED BTFMP update

Attachment : RE: re. questions on review of EPR;BTFMP letter April 2019.docx;EA Permit 20190131_EPML01470513_Adani Mining Pty Ltd_Carmichael Coal Mine.pdf;FW: BTFMP submissions;image001.png;image003.png;

Hi Jamie and Dean,

Just by way of update on the BTFMP I can provide the following:

- 15 March 2019 Adani's response to the independent expert review was received by DES (attached);
- 21 March 2019 DES met with Adani to discuss BAAM report;
- 26 March 2019 teleconference between DES, Adani and BAAM (Adrian Caneris);
- 26 March 2019 DES sent questions to Adani for clarification on the BAAM report (attached);
- 2 April 2019 Adani responded to DES questions (attached);
- A scheduled teleconference on the 4 April cancelled by Adani and re-scheduled for 8 April 2019 (TBC);

sch3(7) Information subject to legal professional privilege

Regards,
Melissa.



Melissa Wells
Executive Director
Coal and Central Qld Compliance
Department of Environment and Science

P 07 4987 9343
99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

Date : 2/04/2019 11:12:24 AM
From : "Hamish Manzi"
To : "MCCOSKER Juliana"
Cc : "WELLS Melissa" , "Paul Fennelly"
Subject : RE: re. questions on review of EPR
Attachment : Response to DES Questions BTFMP.PDF;image001.jpg;

Good morning Juliana,

Please find attached the response to your questions from Adrian Caneris.

Apologies this has taken a little longer than expected.

In order to keep discussions progressing, can we look to arrange to meet this Thursday if that suits?

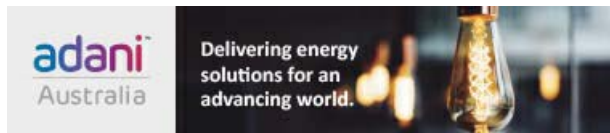
Kind regards

Hamish

Hamish Manzi

Head - Environment & Sustainability

E sch4p4(6) Personal information
P office: +61 7 3223 4800 | direct: +61 7 sch4p4(6) Personal information
A Level 25, 10 Eagle Street, Brisbane, QLD, 4000
P GPO Box 2569, Brisbane, QLD, 4001
W adaniaustralia.com



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From: MCCOSKER Juliana [mailto:Juliana.Mccosker@des.qld.gov.au]
Sent: Tuesday, 26 March 2019 3:49 PM
To: Hamish Manzi sch4p4(6) Personal information
Cc: WELLS Melissa <Melissa.Wells@des.qld.gov.au>; Paul Fennelly sch4p4(6) Personal information
Subject: re. questions on review of EPR

Hi Hamish,

Please see below questions for Adrian:

1. Page 6 paragraph 4 'Whilst I agree with the need to establish an understanding of the population, I consider the required confidence limits and timeframe proposed a being unreasonable and impractical.' What are reasonable and practical timeframes and confidence limits?
2. Page 7 paragraph 4 'The BTFMP will ultimately inform assessment of the adequacy of the offsetting and mitigation of impacts in accordance with relevant commonwealth and state approval conditions.' Should this assessment be clearly articulated in the BTFMP?
3. Page 10 paragraph 2 'I do agree detailed population information is required to measure population declines, though note this is not a specific requirement within the EA conditions.' Given that a BTF population measurement is needed to understand how the BTF habitat is used and for the maintenance of a viable local BTF population as per I h) & breeding requirements as per I j)- could you provide recommendations of how and when the BTF population should be estimated?
4. Page 10 paragraph 5 'Although a considerable level of detail on the BTF and their habitat has been collected, I do view the structure and formation of a research panel and research plans as needed to result in systematic structure to allow robust analysis of data collected.' How should this robust analysis of data be formalised in the structure and formation of a research panel and research plans?
5. Page 11 paragraph 4 'I do agree with the EPR there could be more specific detail and commitment in respect to condition I9'. What do you think this detail and commitment should be with respect to the management action to maintain the BTF population at ten mile bore and surrounds?
6. Page 12 paragraph 4 'I recommend that the development of the BTFRP ensure inclusion of activities to inform analysis of the population size within the Project area'. How should analysis of population size be incorporated into the RP?
7. Page iTable 1 Q1 row 4 'Assessment of the population viability should be undertaken regarding the total population and is an outcome that should be achieved through the research program'. Do you mean in the project area and how should it be incorporated in research program?
8. Q3 page iii 2nd row talks about research trials for grazing. However, what are your recommendations with respect to grazing on the site to maintain the BTF habitat and BTF population? Would you support a low grazing regime in the Project area?
9. Q3 page v 4th row 'I do agree suitable monitoring protocols should be incorporated in the research plan to allow analysis of the BTF population'. Would a commitment to this end in the BTFMP be acceptable?
10. Q3 page v last row - 'I do accept that avoidance of the ten mile bore area would result in considerably less impacts on BTF and their high value habitat.' Do you mean no mining impact or avoidance of grazing?

11. Q5 page vii first row – ‘I agree the research aims should be expanded to include detailed research plans to be developed to allow for population estimates.’ What is a reasonable timeframe for this to be achieved from commencement of research?
12. Q7 page vii 2nd row with respect to The monitoring and research components are treated as if they are mutually exclusive – ‘I did share that view. The BTFMP outlines research aims and it is the research plans which will identify how to interrelate these activities.’ How should the research and monitoring be tied together in the BTFMP?

Ciao for now

Juliana

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02 April 2019

ADDITIONAL INFORMATION IN RESPONSE TO DES QUESTIONS ON INDEPENDENT REVIEW

I was engaged on behalf of Adani Mining Pty Ltd to read and consider the Review of the Black-throated Finch Management Plan (BTFMP) – Report to the Queensland Department of Environment and Science (DES) produced by the University of Melbourne and dated 15 February 2019 (Expert Panel Review [EPR]).

Following submission of my review, the DES sought further clarification on my report. The information/clarification sought was verbally provided via a phone conference on March 26, 2019 and subsequently provided in writing.

I have primarily considered my following responses in respect to the requirements of Conditions I6 to I10 of the environmental authority EPML01470513 (EA conditions) and regarding Conditions 5 and 6 of the Commonwealth approval EPBC 2010/5736 for the Carmichael Coal Mine and Offsite Infrastructure Project (Project).

Where appropriate, I have included additional comments towards provision of considerations of outcomes sought by the BTFMP and stated aims of the Black-throated Finch Management Plan (BTFMP) or my views towards the BTFMP achieving appropriate management. I note and believe it should be clearly stated that aspects of the issues raised, and responses provided often go beyond the scope of the EA Conditions and outcomes the BTFMP is required to or seeking to achieve. Where provided the responses are given towards an improved understanding and to be helpful to the assessment process.

The need for assessment and understanding of the extant BTF population is a recurring aspect within the questions posed by DES. The objective of the BTFMP is to determine critical ecological requirements for the BTF in accordance with the EA conditions. The proposed BTF monitoring regime is designed to provide assessment on the effectiveness of mitigation measures and to evaluate the success of proposed rehabilitation activities. In respect to assessment and understanding of the BTF population, this outcome is to be obtained by way of the concurrent research program (refer to BTFMP) and is to be further addressed, if necessary, through the annual review required by condition I7 to identify if any additional actions are required.

The list of questions from DES references sections of my initial advice letter and poses questions seeking clarification or additional information. I have provided and addressed each question independently below.

Des Q1: Page 6 paragraph 4 'Whilst I agree with the need to establish an understanding of the population, I consider the required confidence limits and timeframe proposed a being unreasonable and impractical.' What are reasonable and practical timeframes and confidence limits?

There are aspects of what is reasonable and practical in relation to understanding the population that need to be considered. The primary consideration is what is required by the EA conditions and reasonable actions required thereon. The EA conditions require baseline assessments and no specific measurement of population numbers. My reading of the EA conditions results in the view that the aim of conditions is to understand the species' resource partitioning, and not monitoring or measurement of the actual population. Otherwise, a specific request for population assessment and monitoring would be included within the imposed conditions. I understand this approach to be standard and essentially aligns with the impact offsetting requirements under the Queensland Environmental Offsets Framework, which essentially involves land-based or financial offsets. The framework does not invoke conditions specific to maintaining or measuring population numbers within offsets.

The proposed monitoring will provide valuable data on population trends in combination with proposed radio-tracking (which will enable increased assessment of flock sizes and species movement) and bird-banding (which will allow marked recapture analysis), particularly if/when combined with the required watering point monitoring.

In my view, it is the role of the appointed research team to finalise the overall design and associated methodologies of the scientific studies required to meet the imposed conditions and obtain appropriate understanding for informed management. These research plans require DES approval to add certainty to the inclusion of appropriate methodologies to inform management and reporting provisions.

The BTFMP and BTFRP are to be reviewed annually, with the input of specialists in accordance with EA condition 17, and any revisions of the survey and monitoring program must be carried out in consultation with the BTF Recovery Team and must be independently peer reviewed.

Where increased understanding of the population is required for informed management responses, this should be readily identified through this process by the research team and/or independent reviewers. Annual reporting to DES also provides additional scrutiny of how informed the research results are.

I do recommend that the design, implementation and data capture be formulated through liaison with other stakeholders to allow integration with concurrent population monitoring and management within the broader Bioregional BTFMP. This is important for long term management of BTF at the project and regional scale. It is only through analysis of research at both the project and wider landscape scales that a true BTF population understanding be established. Population studies essentially require control populations away from the Project impacts, to allow recognition of number fluctuations which are, or are not, related to the Project.

Although population information can be important for overall species management, it should be clearly understood that the objective of the BTFRP is to determine critical ecological requirements and provide these for the BTF in accordance with the EA conditions.

In respect to reasonable and practical timeframes and confidence limits, I consider BTF to be a species which is difficult to obtain an accurate population census for within the project area in isolation of external factors. The species' presence can be a combination of resident animals, itinerant and seasonal visitations, and numbers would be expected to vary depending on seasonal and environmental factors, particularly drought.

In reference to the BTFRP implementation time-line (BTFMP section 5.1), I view the indicative time-line of research activities provided in Table 7 as a reasonable time to establish the main activities and address influencing factors. With the level of information already obtained from numerous site-based assessments and the proposed activities of the research program.

I believe it is reasonable to obtain a population estimate or population density within given areas, which includes max and minimum values founded on measurements during various temporal and environmental impacts, within 4 years of approval.

DES Q.2: Page 7 paragraph 4 'The BTFMP will ultimately inform assessment of the adequacy of the offsetting and mitigation of impacts in accordance with relevant commonwealth and state approval conditions.' Should this assessment be clearly articulated in the BTFMP?

It is well beyond the scope of the BTFMP to determine whether the offset area is commensurate with the impacts. The offset requirements have been determined. The actions prescribed and associated EA conditions have been designed so that the BTFMP will ultimately inform assessment of the adequacy of management responses. The scope of the BTFMP is somewhat limited to the required tasks as defined by EA conditions. The primary aim is ensuring that the land based offsets attain suitable habitat values and associated mitigation actions are undertaken in accordance with relevant commonwealth and state approval conditions.

The research aims have been specifically developed to provide insight into the effectiveness of management responses. However, it is the offset management plan and associated reporting which should clearly articulate the adequacy of the offsetting and mitigation overall.

The proposed BTF monitoring, and the monitoring already undertaken, will provide valuable data to monitor population trends in combination with proposed tracking (which will lead to understanding of flock size and movements) and banding (which will allow marked recapture analysis). Ultimately it is the research plans which should design how the adequacy of offsetting and mitigation of impacts in accordance with relevant commonwealth and state approval conditions is accurately measured. The annual reviews will provide for additional independent 'experienced persons' to provide input towards improved methodology and/or analysis thereof.

DES Q.3: Page 10 paragraph 2 'I do agree detailed population information is required to measure population declines, though note this is not a specific requirement within the EA conditions.' Given that a BTF population measurement is needed to understand how the BTF habitat is used and for the maintenance of a viable local BTF population as per I h) & breeding requirements as per I j)- could you provide recommendations of how and when the BTF population should be estimated?

I do not view that a BTF population measurement is needed to understand how the BTF habitat is used or for the maintenance of a viable local BTF population. EA Condition I6h requires surveys/monitoring of habitat, movements and resource usage and these are well covered by the research aims within the BTFRP. EA Condition I6 j requires assessment of breeding habitat attributes to understand breeding requirements and spatial and temporal variations, not population estimates. The EA conditions do not require measurement of the BTF population by the project.

I do view that an understanding of population variations, particularly spatial and environmental variations, would provide valuable insight for BTF management. It is the realm of the appointed research team and research plans to establish how this is best undertaken.

To be clear, I do agree detailed population information is required to measure population declines, but this is not a specific requirement within the EA conditions and therefore is not a fundamental flaw in the BTFMP. What is important, is that the research undertaken is collected and collated in formats that allow for understanding of population dynamics and inclusion within the bioregional monitoring to inform understanding of the species' viability at the regional level.

In general terms, the BTFMP is required to ensure habitat values removed by the Project are appropriately replaced and there are actions undertaken towards mitigation of known threatening processes. The BTFRP is correctly designed to identify the movement patterns, habitat requirements and population dynamics, dietary requirements, home range and nesting requirements for the BTF as well as the relationship between water sources, woody habitat and food sources.

Regarding establishment of detailed population information, I note the BTFRP does include clear objectives to assess breeding (Aim 2). A measure of breeding success in order to demonstrate that similar levels of breeding are being maintained is a key fundamental element in identification of viability of a population and will enable suitable benchmarks by which the offsets and mitigation actions can be assessed.

Overall, the BTF population should be monitored through the bioregional research programs and the project should contribute to this assessment. Due to fundamental restrictions on the project's ability to access lands beyond their control, it is unreasonable to consider imposing a requirement for a regional population

DES Q.4: Page 10 paragraph 5 'Although a considerable level of detail on the BTF and their habitat has been collected, I do view the structure and formation of a research panel and research plans as needed to result in systematic structure to allow robust analysis of data collected.' How should this robust analysis of data be formalised in the structure and formation of a research panel and research plans?

This is broadly beyond the scope of the BTFMP at this stage, as it ultimately resides within the BTFRP research plan development and falls to those engaged to structure the plans and design suitable analysis. Overall, it is obvious a baseline research program requires stated research aims (provided within the BTFRP Section 4) and a clear understanding of what answers the research program is seeking to determine. Essentially, the answers are ultimately those required to address the imposed EA conditions.

The research plans need stated objectives which are fundamentally measurable. The design needs to model and define activities required to obtain the desired outcomes. Sampling and data collection need to be structured so that evaluation of data can provide appropriate measures of the stated research aims.

Of highest importance is the development of the research plans concomitantly with other BTF research and particularly with the Bioregional BTF research and management plans for inclusion and ease of result collaboration.

DES Q.5: Page 11 paragraph 4 'I do agree with the EPR there could be more specific detail and commitment in respect to condition I9'. What do you think this detail and commitment should be with respect to the management action to maintain the BTF population at ten mile bore and surrounds?

My comments in respect to more specific detail and commitment to condition I9 relate directly to BTFMP section 6.4.7 Management of Ten Mile Bore. The details provided within Section 6.4.7 of the BTFMP cover the main actions required and correctly refer to awaiting the results of the findings of the BTF Research Program in respect to maintaining the current BTF population of Ten Mile Bore and surrounds. This section provides the interim management measures which include:

- Avoiding mining-related disturbance of the area until as late as possible (see Section 6.3.1);
- Maintaining water for BTF, to be monitored through weekly water infrastructure inspections; and
- Managing grazing activities in the vicinity of Ten Mile Bore to enhance and maintain BTF habitat values.

BTFMP section 4.6.1 includes - A baseline research program will be established to determine whether Ten Mile Bore and surrounds are high value BTF habitat. During the baseline research program, the management of grazing will be based on existing pastoral management practices in accordance with land agistment agreements, pastoral holding lease conditions and associated legislation pertaining to pastoral management activities. Section 4.6.1 also includes commitment by Adani to undertake annual BTF habitat vegetation assessments (using the methodologies described within 'Carmichael Coal Mine and Rail SEIS Report for Black-throated finch On-site Monitoring Survey) at approved monitoring locations in the vicinity of Ten Mile Bore during May to maintain and where possible enhance BTF habitat within the Ten Mile Bore area.

I note that the BTF habitats in proximity to Ten Mile Bore have been subject to grazing for many years, and it is under the existing practices that BTF have been maintained in numbers to be considered a significant area.

The actions required to address I9 are well covered by the BTFRP research aims and my comments relate to BTFMP section 6.4.7 being more explicit on how these results will be utilised to maintain the current population of Ten Mile Bore. I do, however, accept that it would be presumptuous to predict how this is to be achieved without the research results to inform the appropriate/necessary management responses.

DES Q.6: Page 12 paragraph 4 'I recommend that the development of the BTFRP ensure inclusion of activities to inform analysis of the population size within the Project area'. How should analysis of population size be incorporated into the RP?

I view the actions undertaken to date, particularly the watering point monitoring, and the actions prescribed in the BTFRP as providing the basis needed for a population estimate to be established. The consistent regular monitoring of watering holes will provide sound information on the numbers present. This will be particularly more robust if several waterholes are monitored concurrently to allow assessment of BTF numbers location and time across a given area. This type of monitoring will provide some analysis of maximum numbers and density within given areas. Ideally, watering point monitoring is undertaken in combination with the proposed banding which will allow mark-recapture methods to also be analysed.

The level and extent of how these activities are to be incorporated should be left to the research team to develop as it will be influenced by the specific methods employed, number, type and repetition of the actions and various modelling and programs used to assess results.

The key point is the methods used should be developed in consultation with other researches working on the species across its range to allow for result sharing and inclusive analysis. Although I recommend that the development of the BTFRP ensure inclusion of activities to inform analysis of the population size within the Project area, such activities should also be mirrored by wider regional studies. As stated above, a true understanding of the population and number fluctuations within the project area requires comparable understanding of control populations away from the Project area to allow recognition of number fluctuations which are, or are not, related to the Project.

Ultimately, it falls to the research team, reviewers and regulators to ensure the research plans and inherent methodologies are robust and fit for purpose.

DES Q.7: Page i Table 1 Q1 row 4 'Assessment of the population viability should be undertaken regarding the total population and is an outcome that should be achieved through the research program'. Do you mean in the project area and how should it be incorporated in research program?

My comments are specific to the project area. As detailed above and within my prior advice, the project should be undertaking assessment for the project area and providing the results to those charged with the Bioregional Plan, BTF recovery team and research institutions for wider analysis. An understanding of the population viability must be done in combination of the total population at the landscape/regional scale. This is beyond the scope of the BTFMP. As stated in Page i Table 1 Q1 row 4 of my advice, *The BTFMP is a plan specific for the Project area and offset areas.*

DES Q.8: Q3 page iii 2nd row talks about research trials for grazing. However, what are your recommendations with respect to grazing on the site to maintain the BTF habitat and BTF population? Would you support a low grazing regime in the Project area?

I do not have the information or experience to provide specific recommendations on a suitable grazing regime for various areas within the project area. There is no doubt that high levels or intense grazing is a recognised threat. I do generally support a low grazing regime in those

areas recognised as being high value finch habitats and specifically around the Ten Mile Bore Area. I note that these areas traditionally have relatively low grazing regimes which is why higher habitat values have been retained.

This is a complex issue and needs data to inform identification of the best management responses for both short and long term habitat maintenance.

I do see clear value in the proposed grazing trials to inform ongoing management. For clarity, I consider that grazing exclusion may have other indirect detrimental impacts on BTF habitat values.

DES Q.9: Q3 page v 4th row 'I do agree suitable monitoring protocols should be incorporated in the research plan to allow analysis of the BTF population'. Would a commitment to this end in the BTFMP be acceptable?

A specific commitment to undertake analysis of the BTF population is not required by the EA conditions or the EPBC Act approval conditions 5 and 6. The management of the BTF population is primarily achieved through the targeted monitoring and research activities with the results feeding back through the research team to inform the management measures and to guide adaptive management responses. The monitoring will be focussed on describing spatial and temporal patterns of occurrence, while the research will focus on explaining spatial and temporal patterns and ecological relationships.

Notwithstanding the specific requirements of the applicable conditions, the BTFMP does include commitment to monitoring surveys conducted biannually for a 10 year period by suitably qualified ecologists in accordance with standard methodology to identify changes in BTF population size and movements over time. There is also commitment to undertake bird banding and employ re-sighting techniques to provide a basis for assessing movement patterns and assessment of population dynamics.

The combination of the above techniques, targeted searches and watering point monitoring facilitate detailed BTF demography. The inclusion of population analysis techniques would be developed within the research plans methodology and through analysis of results.

DES Q.10: Q3 page v last row – 'I do accept that avoidance of the ten mile bore area would result in considerably less impacts on BTF and their high value habitat.' Do you mean no mining impact or avoidance of grazing?

I specifically mean mining and it is apparent. The sentence should be read in line with the caveat that follows being "*However, the Project is approved and, to meet the approval conditions, the purpose of the BTFMP is to minimise unavoidable impacts to BTF from the Project.*"

The overall aim of the Project and EA conditions is for the habitats within the offset areas to compensate for the loss of habitat resulting of the project.

The Ten Mile Bore area holds high value BTF habitats as is clearly demonstrated by the consistency in number of birds present. Avoidance of this area by the Mine would obviously have considerable positive influence on the project's ability to meet condition 19b. However, my statement should only be read with acknowledgement and in context with the following sentences in that response.

To assist in clarity of my view, I accept that the Project is approved and the footprint includes the Ten Mile Bore area, with provision that if removed the project has established management actions (mitigation responses) to demonstrate compliance with condition I9.

DES Q.11: Q5 page vii first row – 'I agree the research aims should be expanded to include detailed research plans to be developed to allow for population estimates.' What is a reasonable timeframe for this to be achieved from commencement of research?

I have provided response to this under DES Q.1 above. I believe four years is a reasonable time frame for a population estimate of the project area to be established.

DES Q.12: Q7 page vii 2nd row with respect to the monitoring and research components are treated as if they are mutually exclusive – 'I did share that view. The BTFMP outlines research aims and it is the research plans which will identify how to interrelate these activities.' How should the research and monitoring be tied together in the BTFMP?

Section 7 of the BTFMP outlines the monitoring and research programs. Although they are outlined and address exclusively, there is full intent for these to be developed with unification by the research team. There are distinct differences in the monitoring and research components in that monitoring is primarily designed towards understanding of spatial and temporal patterns of BTF occurrence and BTF habitat partitioning and values, while the research is to be focused on explaining spatial and temporal patterns and intrinsic ecological relationships of BTF and their habitat requirements.

It is ultimately the role of the research team to ensure that the research plans are designed to integrate the various monitoring and research components to facilitate full inclusion of results within analysis.

Please do not hesitate to contact me should you require any further clarification or assistance with this matter.

Yours faithfully,

ch4p4(6) Personal informatio

Adrian Caneris CEnvP (Ecology Specialist)
Managing Director
Biodiversity Assessment and Management Pty Ltd

Date : 2/05/2019 3:33:26 PM

From : "WELLS Melissa"

To : "Hamish Manzi"

Cc : "Paul Fennelly" , "MCCOSKER Juliana"

Subject : BTFMP DES Feedback

Attachment : Letter DES BTFMP Feedback 2 May 2019.pdf;image001.png;image003.png;

Hamish,

Please see correspondence attached.

Kind regards,

Melissa.



Melissa Wells
Executive Director
Coal and Central Qld Compliance
Department of Environment and Science

P 07 4987 9343

99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720



Department of
Environment and Science

Our Ref: Black-throated Finch Management Plan

2 May 2019

Hamish Manzi
Head of Environment and Sustainability
Adani Mining Pty Ltd
Level 25, 10 Eagle Street
Brisbane QLD 4000

Dear Mr Manzi,

The Department of Environment and Science (the department) has carefully considered the submissions made by Adani with respect to the independent expert panel review of the Black-throated Finch Management Plan (BTFMP).

The department is of the view that it cannot approve the BTFMP in its current form because the document does not meet the requirements of conditions 16, 18 and 19 of the Carmichael Coal Mine environmental authority EMPL01470513 for the reasons identified in Attachment A to this letter.

However, Adani may submit a new or revised BTFMP for the department's consideration at any time. The department recommends that in revising the BTFMP, Adani have regard to the matters identified in Attachment A.

Should you require any further information, please contact Juliana McCosker, Manager of Business Centre (Coal) of the department on telephone (07) 4987 9356 or by email at juliana.mccosker@des.qld.gov.au.

Yours sincerely

sch4p4(6) Personal information

Melissa Wells
Executive Director
Coal and Central Queensland Compliance
Environmental Services and Regulation

Enc:

Attachment A – Departmental comments on the BTFMP version 7b

Attachment A – Departmental comments on the BTFMP version 7b

Environmental Authority Holder: Adani Mining Pty Ltd

EA: EPML01470513

Project: Carmichael Coal Mine

Document: Black-throated Finch Management Plan

EA conditions: I6 (a) to (k); I8 and I9 (a) & (b)

Document full title	Black-throated Finch Management Plan – Carmichael Coal Mine Project. Prepared for Adani Mining Pty Ltd, Version 7b, 17 December 2018
Delegate	Juliana McCosker
Reviewing officer	Kate Bennink
Received date	17 December 2018
Background	<p>This review was completed on the BTFMP (version 7b) received on 17 December 2018.</p> <p>In completing the review, consideration was given to the following:</p> <ul style="list-style-type: none">○ an independent expert panel review report received by the department on 18 February 2019;○ correspondence from an ex-BTF recovery team member;○ internal advice from the department's Threatened Species Operations branch; and○ submissions made by Adani on 14 February 2019, 1 March 2019, and the Adani commissioned independent review of the final report by BAAM Ecological Consultants received on 15 March 2019 and clarification received on 2 April 2019.

Condition	Issue	Requirement
<p>16 The holder of this environmental authority must submit a Black-throated Finch (BTF) Species Management Plan (SMP) prepared and certified by a suitably qualified person to the administering authority for approval prior to the commencement of Project Stage 2.</p> <p>The holder must publish the BTF SMP on its website within 10 business days of receiving the administering authority's approval in writing. The approved BTF SMP must be implemented.</p> <p><u>The holder must align the SMP with any Bioregional BTF Management Plan and relevant documentation requirements under the Environmental Protection and Biodiversity Conservation Act 1999 including the BTF Recovery Plan, conservation advice and the threat abatement plan.</u></p>	<p>1. The BTFMP submitted on 17 December 2019 does not align with BTF Recovery Plan, the draft Bioregional BTF Management Plan and the relevant documentation requirements under the <i>Environmental Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) including the BTF Recovery Plan, conservation advice and the threat abatement plan, with respect to addressing the impacts from overgrazing on BTF habitat.</p> <p>The draft Bioregional BTF Management Plan recommends '<i>a reduction in stocking rates that results in an increase in grass cover and the proportion of native grass species will benefit the BTF and the provision of research program data collection</i>'.</p> <p>A conservative low stocking rate will maintain the perennial pasture seed sources on which the BTF population depends.</p> <p>2. The Coordinator-General's (CG) evaluation report details that the BTF Bioregional Management Plan is to maximise the ongoing protection and long-term conservation of the EPBC Act listed species and habitat in the Desert Uplands bioregion.</p> <p>Recommendation 4(b)(iii) by the CG requires the collation of baseline and ongoing survey data recorded by proponents.</p> <p>The submitted BTFMP does not provide a commitment to provide data collected from surveys or research under the research program in order to maximise the ongoing protection and long-term conservation of BTF species and habitat in the Desert Uplands bioregion.</p>	<p>1. In the area outside the Ten Mile Bore area of the mining lease, Adani must demonstrate a commitment to BTF habitat maintenance to satisfy the EA condition requiring alignment with the BTF Bioregional Management Plan, the BTF Recovery Plan and the EPBC Act species conservation advice.</p> <p>The department requires a commitment by Adani to maintain low stocking rates until mining related impacts occur and this commitment should be clearly stated in the BTFMP.</p> <p>As a suggestion, this could be a commitment to a stocking rate of 1 beast to 50ha and/or a similar strategic grazing regime as committed to for the Moray Downs West offset area (p74).</p> <p>2. Adani must demonstrate a commitment to support the BTF Bioregional Plan through the provision of data collected in the Research Program to inform a region-wide BTF Population Viability model to satisfy the EA condition requiring alignment with the BTF Bioregional Management Plan, as well as CG condition 4(b)(iii).</p> <p>A regional Population Viability model can in turn inform Adani of the aspects of the species biology that may be critical for management intervention. A bioregional Population Viability model can also help predict, extrapolate benefits and impacts from project research findings to the bioregional population.</p> <p>a. Population viability analysis (PVA) is a useful tool to estimate the probability of persistence of a species.</p> <p>b. A focus of the BTF Bioregional Management Plan is the assessment of the cumulative impacts from mining and grazing on the bioregional population. It can be used to measure cumulative impacts of site-based threats on a population or alternatively the benefits of management actions.</p> <p>c. The PVA of a spatially structured population such as the BTF in the Desert Uplands would require the input of demographic information from sub-populations at each site and the determination of how individuals interact between sites.</p> <p>d. Impacts of site-based threats on the regional BTF population will depend on levels of migration (i.e movement between sites), numbers of sites and the size of sub-populations at each site.</p>

Condition	Issue	Requirement
<p>16</p> <p>The submitted BTF SMP must include:</p> <p>b) a description of how the results of baseline research program to establish whether the BTF at the project site are sedentary, locally migratory or regionally migratory;</p> <p>c) a description of how the results of baseline research program are to be used to determine any changes of classification of and/or impact on BTF habitat;</p> <p>d) details of <u>proposed impacts to BTF habitat</u> from each Project Stage including impacts from clearing, subsidence, ecological function changes, hydrological changes and weed and pest infestation changes;</p> <p>e) mitigation measures to be undertaken to avoid, mitigate and <u>manage impact resulting from each stage</u> of the project, including rehabilitation of habitat;</p> <p>h) detailed surveys that must occur across the mining lease area and approved offset areas and must include information on BTF movements. The survey method and effort must be sufficient to accurately describe BTF home range and <u>detail BTF resource usage patterns between seasons and years (for up to 10 years)</u> and allow robust management actions to be developed for the <u>maintenance of a viable local BTF population</u>;</p> <p>19</p> <p>The baseline research program under 16 must:</p> <p>b) establish management actions to <u>maintain the current BTF population</u> of Ten Mile Bore and surrounds.</p>	<p>The submitted BTFMP does not provide an estimation of the local BTF population within the project area. Without a baseline estimate of the BTF population before mining activities commences, the department is not satisfied that the BTFMP be able to demonstrate successful management and maintenance of BTF populations or habitat.</p> <ol style="list-style-type: none"> Specifically, without a population estimate, the department is not satisfied that the impacts to BTF habitat and the mitigation measures to avoid, mitigate or manage impacts to BTF habitat will be effective. Secondly, without a baseline population estimate, the department is not satisfied that the monitoring will be able to identify BTF population trends and responses to management actions. The department is not satisfied that the monitoring and surveys proposed in the BTFMP will be able to demonstrate that the viability of a local BTF population is <u>maintained</u> within the Project Area in a sufficiently scientific and robust manner. Additionally, without a baseline population estimate and robust on-going monitoring of the BTF population of Ten Mile Bore and surrounds, the monitoring detailed in the BTFMP will not be able to <u>demonstrate the maintenance</u> of a viable local BTF population at Ten Mile Bore and surrounds. Without the determination of the BTF population estimate in the project area and the location of the BTF populations, the establishment of the BTF movement patterns is not possible as required by condition 16b. 	<p>Adani must make a commitment to establish a robust estimate of the BTF population in the Project area to satisfy the EA conditions. The Project area being the mining leases and adjacent offset area.</p> <p>The department suggests the commitment should include a confidence limit of +/-10%, and be completed within two years of approval of the BTFMP.</p> <p>Furthermore, Adani must make a commitment to more accurately quantify the BTF habitat with respect to actual occupancy by BTF populations to demonstrate achievement of the EA conditions. Specifically conditions 16c and 16d, in order to better quantify the impacts, and condition 16e, to measure the effectiveness of the management and mitigation measures.</p> <p>It is also necessary to understand the scale of proposed impacts and proposed mitigation measures by identifying important population locations. The department recommends that this should be completed within one year of approval of the BTFMP to further inform monitoring. The department considers that important population locations should be determined as those areas that support a disproportionate share of the Project area's BTF population (e.g. >20%).</p> <p>A population estimate is required in order to demonstrate that viable local BTF populations are maintained as required by condition 16h and maintenance of the current BTF population of Ten Mile Bore and surrounds as required by condition 19.</p> <p>Adani must make a commitment to ongoing BTF population monitoring for the life of the project to satisfy the EA conditions requiring demonstration of maintenance of the population.</p> <p>Consistent with and further to the above:</p> <ol style="list-style-type: none"> BTF population monitoring is important in order to measure the impacts and benefits to the BTF population of management actions proposed. A BTF population estimate will demonstrate that there is no net loss of the BTF population as result of the project. A BTF population estimate will ensure population gains/maintenance in the offset area and non-mined areas can be accurately demonstrated.

Condition	Issue	Requirement
		<p>c) A BTF population estimate may be able to be determined from survey data already collected to date and not presented in the current BTFMP. An analysis of existing survey data and monitoring methods to date should be undertaken to determine if these results can adequately, appropriately and with sufficient statistical power estimate the BTF population in the Project Area.</p> <p>d) A BTF population estimate will allow assessment and further development of the current understanding of critical habitat, core habitat, marginal habitat and non-habitat areas in the project area by incorporating knowledge of population density and population performance with respect to the key habitat attributes that currently define these BTF habitat types.</p> <p>e) Collection of robust count and mark-resight data to support baseline density estimates (from baseline survey work completed to date) in the Project area is presented in the BTFMP as a component of the research program. However, regular count and mark-resight BTF surveys is recommended to be undertaken for the life of the project.</p> <p>f) A population estimate will allow for the demonstration of the maintenance of the BTF population at Ten Mile Bore and surrounds.</p>
<p>I6 The submitted BTF SMP must include: d) details of proposed impacts to BTF habitat from each Project Stage including impacts from clearing, subsidence, ecological function changes, hydrological changes and weed and pest infestation changes; e) mitigation measures to be undertaken to avoid, mitigate and manage impact resulting from each stage of the project, including rehabilitation of habitat;</p>	<p>The intent of the BTFMP as determined by the May 2014 CG evaluation report, states on p80 that: <i>the BTF Species Management Plan must include:</i></p> <ul style="list-style-type: none"> <i>details of specific impact to BTF and habitat from each project stage, including impacts from clearing, subsidence, mine dewatering, ecological function changes, hydrological changes and weed and pest infestation changes.</i> <p>A robust monitoring program is necessary to ensure that the actual BTF habitat is accurately defined by BTF usage and value to BTF populations, and impacts to BTF habitat are accurately defined as required by I6d. This information is necessary to accurately define BTF habitat to ensure success of the management actions and mitigation measures for conditions I6e.</p>	<p>Adani must provide a commitment that the current monitoring program will be re-designed and implemented within five years of approval to determine with high certainty (>95%) that the proposed management actions in the Project area, and ensure a no net loss of the BTF population in the Project area</p> <p>In the revision of the BTFMP, Adani must:</p> <ol style="list-style-type: none"> Present <u>quantitative measurement of all impacts</u> on the BTF population from all stages of the project and detail effective, measurable management and mitigation options. The performance criteria must include quantitative measurements of the proposed impacts on the BTF population and habitat within the project area. The <u>adaptive management triggers</u> must be supported by powerful statistical analysis that demonstrates when significant changes in BTF population, threats and habitat condition are reached.

Condition	Issue	Requirement
	<p>The monitoring program in the BTFMP is not satisfactory as it not statistically robust for the life of the project.</p> <p>The management objectives, performance criteria, adaptive management triggers and corrective actions detailed in tables 8, 9 and 10 of the BTFMP do not provide</p> <ol style="list-style-type: none"> sufficient quantification of the each impact on BTF and habitat adaptive management triggers are not supported by statistical analysis necessary to determine significant changes in BTF population, BTF habitat and threats. Lacks details of how the research program will enhance the management objectives. The rehabilitation management objective does not include detail of which plant species will used in the rehabilitation of BTF habitat once the area is no longer necessary for mining operations. 	<ol style="list-style-type: none"> <u>BTF population trigger response</u> - In order to monitor the direct and indirect impacts from construction and operation on the BTF population in the Project and in order to evaluate the effectiveness of the management and mitigation measures, monitoring must be directly linked to changes in BTF population sizes as well as changes in BTF habitat condition. An appropriate BTF population trigger response needs to be coupled to each management action. <u>Management actions</u> must be definitively stated, not limited by the caveat of 'where possible'. <u>Corrective actions</u>: The corrective actions must be definitively stated rather than limited by caveat of 'may include'. Detail exactly how the research program will inform monitoring to determine whether the management of habitat and impact management is on track to deliver benefits to the BTF population and BTF habitat. Include a <u>rehabilitation mitigation measure</u> that the research program will establish the plant species that provide critical food resources to BTF during seasons of seed shortages. Mitigation must include rehabilitation planning to commence a propagation program of these plant species and the development of management knowledge to ensure that revegetation of BTF habitat using these critical species will be successful.

Condition	Issue	Requirement
<p>I6</p> <p>The submitted BTF SMP must include:</p> <p>e) mitigation measures to be undertaken to avoid, mitigate and manage impact resulting from each stage of the project, including rehabilitation of habitat;</p>	<p>Fragmentation is recognised as an impact that requires mitigation, however the key fragmentation in the north of the Project area is not adequately addressed.</p> <p>The performance criteria in Table 8 'Minimise habitat fragmentation' does not provide detail of how habitat on the north-eastern side of the offset area will remain connected to the western side.</p>	<p>Adani must make a commitment to maintain connectivity east-west across the offset area in the northern part of Moray Downs West, in order to satisfy the EA condition requiring mitigation of impacts.</p> <p>The MLs (70514 and 70515) from the China Stone Coal Project come down into the Moray Downs property and link to Adani's ML70506, resulting in a lack of connectivity of BTF habitat in the northern part of the offset area.</p> <p>The department recommends that this fragmentation issue could be addressed in one of three ways:</p> <ol style="list-style-type: none"> Adani must provide a commitment of no development in ML70506, or include ML70506 in the offset area, or a part of ML70506 is included in the offset area to ensure connectivity across the northern part of the offset area. <p>This commitment will provide assurance to the department that connectivity of BTF populations is maintained across habitat in northern part of the Moray Downs West Offset Area.</p>
<p>I6</p> <p>The submitted BTF SMP must include:</p> <p>a) a baseline research program on the specific nesting and feeding requirements of the species that will be undertaken prior to and during Project Stage 1;</p> <p>b) a baseline research program to establish whether the BTF at the project site are sedentary, locally migratory or regionally migratory;</p> <p>h) detailed surveys that must occur across the mining lease area and approved offset areas and must include information on BTF movements. The survey method and effort must be sufficient to accurately describe BTF home range and <u>detail BTF resource usage patterns between seasons and years (for up to 10 years)</u> and allow robust management</p>	<p>The research program currently contains numerous insufficiencies, and fails to address several EA conditions. The inclusion of additional details is required to provide certainty that critical seed sources together with development of an understanding of how climatic, edaphic and management actions affect critical seed sources will be achieved from the Research Program.</p> <p>With respect to condition I6a, the Research Program omits to include research requirements to determine the environmental and edaphic factors that affect the availability of critical seed sources for BTF and the identification of seed sources and availability during bottleneck periods such as at the end of the dry season and early wet season.</p> <p>With respect to condition I8, the Research Program lacks inclusion of research requirements to determine how climatic and edaphic factors affect the distribution and availability of critical seed sources. Without an understanding of how climatic and edaphic factors affect</p>	<p>Research Program - Adani must provide a commitment to inform appropriate management aimed at maintaining or improving BTF habitat condition and maintaining, and/or increasing the BTF population within the project area with completion of the research program prior to significant impact to BTF habitat from the project.</p> <p>Adani must update the Research Program by addressing the following recommendations in the Research Aims:</p> <ol style="list-style-type: none"> With respect to condition I6k, the BTFMP must provide a commitment that the research will be undertaken by personnel with experience in analysis, design and interpretation of survey and research data. A high level of expertise such as post-doctoral experience is critical in order to ensure that the research delivers scientifically robust results in a timely manner that informs effective management actions. Research Program - Aim 1 - <u>BTF movement ecology, including an assessment of home range across seasons and dispersal.</u> <ol style="list-style-type: none"> Provide detail of the effort proposed to meet this aim in order to satisfy conditions I6h. Detail that the bias of tracking to more likely record sedentariness and short

Condition	Issue	Requirement
<p>actions to be developed for the <u>maintenance of a viable local BTF population</u>;</p> <p>j) specific surveys that must be undertaken during the BTF breeding season and include nest location and assessment of the habitat attributes associated with the breeding locations. The survey method and effort must be sufficient to accurately describe the BTF breeding requirements with consideration to spatial and temporal variation of resources for up to 10 years.</p> <p>k) survey and monitoring must be undertaken by experienced ecologists.</p> <p>l8 The baseline research program must fund a research project to determine the relationship between water sources, woody habitat and the BTF food sources within the mining lease area and approved offset areas to determine the inter-relationships among these factors.</p>	<p>the distribution of critical seed sources, research into the effects of relationship of grazing and the interrelationship of water sources, woody habitat and BTF food sources would have significant limitations.</p> <p>Research Aim 1 does not provide a clear quantification of the effort that will be used to describe the BTF home range and BTF resource usage patterns between seasons and years as required by conditions l6b and l6h.</p> <p>Research Aim 2 does not provide a clear quantification of the effort that will be used to describe BTF breeding requirements with consideration to spatial and temporal variation of resources as required by condition l6j.</p> <p>Given the complex research that is required, the current description of the ecologists who will be undertaking the surveying and monitoring is insufficient to satisfy condition l6k and provide the department with confidence that the research outcomes will be achieved in a timely manner to inform management actions.</p>	<p>distance movement over long distance will be effectively addressed in the methodology design.</p> <p>ii. Water point monitoring needs must take into account the seasonal variation in count data at watering points to satisfy condition l6b.</p> <p>c) <u>Research Program - Aim 2: Determine the foraging and breeding habitat requirements and the relationship with vegetation structure and composition and water, and Aim 3: Determine the dietary requirements for BTF in the Project Area</u></p> <p>i. Provide detail of the efforts proposed to meet these aims in order to satisfy condition l6j.</p> <p>ii. The methodology must include collection of data on BTF reproductive rates and mortality rates. How these rates vary over years, and between habitats, and the factors that influence breeding success. This information is necessary to establish the breeding requirements of the BTF to satisfy conditions l6a and l6j.</p> <p>iii. An outcome of this research should determine population substructures including age structure and critical areas to manage BTF populations and habitat in different seasons to satisfy conditions l6h and l8.</p> <p>iv. Research must include an assessment of seed availability and their responses to management to satisfy condition l6j. Research focus must be the assessment of seed availability throughout the year and the factors that affect it, especially at any critical periods of seed scarcity.</p> <p>v. The research program must provide the commitment to identify which plant species are most critical for the provision of seeds throughout the year to satisfy condition l6a and l8. Research must include the measurement of the availability of seed resources across months, years and habitat (and in response to variation in grazing and fire regimes), what factors affect seed availability at critical times and what are the critical seed sources at critical bottleneck periods. This research must define and demonstrate how management will enhance the abundance of these plant species and their seed production especially in critical bottleneck periods.</p>

Condition	Issue	Requirement
		<p>vi. Furthermore, to satisfy condition I8, seed phenology, temporal continuity and shortfall and the relationship of these distribution factors to grazing must also be determined. Determine how vegetation dynamics is affected by environmental and edaphic factors such as climate, and which environmental and edaphic factors affect seed quality, quantity and spatial distribution, local variation in distribution and interspecific competition to satisfy condition I6a.</p> <p>d) <u>Research Aim 4: Identify management strategies for BTF habitat in the Project area regarding fire, grazing and water.</u></p> <p>i. In order to achieve the above aim and satisfy condition I8, Adani should test whether livestock exclusion from some water sources can provide benefit to BTF using established water monitoring survey methods to investigate whether or not livestock exclusion to water benefits BTF populations.</p> <p>ii. The research must attain an understanding of spatial and temporal variation in floristic composition and how management actions limit or promote BTF food availability to satisfy condition I8.</p> <p>iii. A key threat to the habitat condition in the BTF habitat is the spread of exotic perennial pasture species such as buffel grass that competes with native perennial pasture that are seed sources for BTF. To satisfy condition I8, the department recommends that pasture management needs to ensure that the current native perennial pasture composition is maintained or improved. Therefore, the research focus should aim to determine effective management that will reduce the likelihood exotic non-native perennial pasture species spreading in the Project area. The effectiveness of pulse grazing of buffel grass source infestations is a possible area of research. Conversely, when and for how long the grazing pressure needs to be lowered to reduce the risk of buffel grass infestations establishing or increasing is another avenue to research.</p>

Condition	Issue	Requirement
<p>I9</p> <p>The baseline research program under I6 must:</p> <p>b) establish management actions to <u>maintain the current BTF population</u> of Ten Mile Bore and surrounds.</p>	<p><u>Ten Mile Bore Area management</u> – From the BTF survey data to date, the Ten Mile Bore area continues to yield the majority of the BTF sightings over the 9 years of surveys and therefore appears to support a large proportion of the Project Area's BTF population.</p> <p>The submitted BTFMP does not provide sufficient detail of a suitable grazing regime that will maintain the current BTF population of Ten Mile Bore and surrounds.</p> <p>If the current grazing regime does not maintain the BTF population then the baseline research will not determine management actions to maintain the BTF population into the future.</p> <p>No commitment to a low grazing regime of Ten Mile Bore and surrounds is provided as recommended in the draft Bioregional BTF Management Plan, BTF recovery plan and conservation advice.</p>	<p>Adani must make a commitment about a low grazing regime to satisfy EA conditions that require the maintenance of the BTF population of Ten Mile Bore and surrounds.</p> <p>The department requires Adani make a commitment about undertaking only strategic grazing, such as or similar to the Moray Downs West offset area (p74), in the environs of Ten Mile Bore area.</p> <p>This recommendation ensures the maintenance of the BTF habitat at Ten Mile Bore that supports the current BTF populations of Ten Mile Bore and surrounds.</p>