

Media release

GDEMP approved

The Department of Environment and Science (DES) approved Adani's Groundwater Dependent Ecosystem Management Plan (GDEMP) today.

Adani submitted its most recent version of the plan, addressing the department's feedback, yesterday.

The GDEMP's assessment has been rigorous and based on the best available science. DES and Adani have met regularly to ensure the plan is robust and provides the maximum environmental protection.

In assessing the plan, both Adani and DES took on board advice from CSIRO and Geoscience Australia – the same advice considered by the Commonwealth Government in approving an earlier version of the GDEMP in April this year.

DES sought further clarification and advice from CSIRO and Geoscience Australia, which it received on 7 June 2019.

Based on this advice, DES is satisfied that the GDEMP sufficiently establishes the main source aquifer of the springs as the Clematis Sandstone.

CSIRO and Geoscience Australia also confirmed that some level of uncertainty in geological and groundwater conceptual models always exists.

DES has required additional commitments from Adani to undertake further scientific work over the next two years. This is required to identify any potential contribution from other aquifers and strengthen the GDEMP.

Additional commitments in the approved GDEMP include:

- Further work to improve the understanding of the source aquifers of springs in the locality, particularly the Doongmabulla Springs Complex, including:
 - Undertaking detailed hydrogeochemical analysis of groundwater and spring samples from different springs within each spring complex
 - Undertaking isotopic analysis (including noble, radioactive gases and strontium isotopes where isotopic analysis is not sufficient)
 - Examining core samples from new bores to attain a better understanding of hydraulic properties and provide detailed geological mapping
 - Incorporating air-borne electro-magnetic modelling undertaken by Geoscience Australia to improve hydrogeological understanding of the area.

- Using a bore in the Dunda Beds (also known as the Rewan Formation) as an early warning trigger for groundwater drawdown monitoring in the Carmichael River.

Additional measures in the GDEMP also address concerns raised last week by Flinders University scientists that the Permian aquifers should not be ruled out as a Doongmabulla Springs Complex source.

These include installing a new bore below the Rewan Formation, in the vicinity of the Doongmabulla Springs Complex, to assist in determining if the Permian aquifers (Colinlea) form a source for the springs.

Adani is also required to review hydrological, hydrochemistry analyses and seismic information as part of its second geological and groundwater remodelling after box cut mining starts, and review seismic information pertaining underground mining impacts (which is scheduled to start in year 10 of the project). Further seismic studies may also need to be undertaken.

Underground mining will not commence until these actions are completed and only if predicted impacts are consistent with approved impacts. Likewise, if the hydrogeological conceptualisation differs from that of the approved project, approval must be sought prior to relevant impact causing activities.

The GDEMP is the second of the two environmental management plans (the other being the Black-Throated Finch Management Plan, approved on 31 May) that needed to be approved before Adani could begin significant mining activities at its Carmichael mine site.

Both plans are a requirement of Adani's EA.

For details of what constitutes "significant mining activities", refer to Appendix 1 – Definitions of the EA for the Carmichael mine, available at <https://apps.des.qld.gov.au/env-authorities/pdf/epml01470513.pdf>.

ENDS



Department of
Environment and Science

10 May 2019

sch4p4(6) Personal information

Chief Executive Officer
Geoscience Australia
Cnr Jerroomberra Avenue and Hindmarsh Drive
SYMONSTON ACT 2609

By email: [redacted]@ga.gov.au

sch4p4(6) Personal information

Director
CSIRO Land and Water
Black Mountain Science and Innovation Park
Clunies Ross Street
ACTON ACT 2601

By email: [redacted]@csiro.au

Dear [redacted] sch4p4(6) Personal information

Thank you for meeting with the Department of Environment and Science (the department) on 16 April 2019 to discuss the CSIRO and Geoscience Australia Report '*Advice on Groundwater Management and Monitoring and Groundwater Dependent Ecosystem Management plans to the Department of the Environment and Energy (CSIRO and Geoscience Australia, February 2019)*' (the 2019 Report).

Following the department's review of the 2019 Report, the department wishes to seek your advice about the type of investigation and research that may provide greater certainty regarding the department's interest in relation to the identification of the source aquifer(s) to the Doongmabulla Springs Complex (DSC).

The environmental authority (EA) for the Carmichael Coal Mine requires Adani to develop and implement a Groundwater Dependent Ecosystems Management Plan (GDEMP). The term GDEMP is defined in the EA and states, among other things, that a GDEMP must include '*detailed baseline research to establish the source aquifer(s) for groundwater supply to each groundwater dependent ecosystem [potentially or indirectly impacted by mining activities]*'.

Your 2019 Report states that:

'It is plausible and reasonable that the Clematis Sandstone is a major source aquifer for the DSC... It is not plausible and reasonable to state unequivocally that the Clematis Sandstone is the sole source aquifer for the DSC...' (p2); and

'Available evidence supports the conceptualisation that the Clematis Sandstone is a likely source aquifer for the DSC. However, the proposed monitoring and management approaches do not sufficiently address the uncertainty regarding the potential alternative or additional source aquifers (refer Section 3.2 and 3.3).' (p9); and

'To constrain the source aquifer(s) of the DSC, a more sophisticated statistical analysis of hydrochemistry data is required. This includes assessing a wider variety of groundwater and surface water analytes, as well as appropriate use of isotope hydrochemistry analysis. Further information on potential techniques is provided (CSIRO and Geoscience Australia, 2018) and other readily available references.' (p10)

Further, in advice given to the Commonwealth Department of the Environment and Energy, *'Advice on draft research plans to the Department of the Environment and Energy'*, dated November 2018, you state:

'An integrated analysis of existing and newly acquired geological, hydrodynamic and hydrochemical data would improve the conceptual understanding of the groundwater sources of the DSC'. (at page 5); and

'Further information on the specific methods and techniques to be applied to chemically assess the springs source and groundwater flow processes is required for a more detailed assessment to be made. This includes the need to define the analytical suite, quality assurance and quality control methods, and use of a broader range of isotopic and environmental traces...' (at page 13).

Having regard to the 2019 Report, the 2018 advice, and our meeting of 16 April 2019, the department has the understanding that the following further research (steps) would improve the certainty about the source aquifer(s) of the DSC and other groundwater dependent ecosystems:

1. hydrogeochemical analysis of water samples for comparison within and across relevant aquifers (Clematis Sandstone, Dunda Beds and Rewan Formation);
2. incorporation of the use of isotope and ageing tracers in the above hydrogeochemical analysis;
3. a comprehensive review of groundwater level and quality data from relevant aquifers including data from new proposed nested bores in the vicinity of DSC;
4. detailed geological mapping including cores from bores drilled in the vicinity of DSC and facies modelling to better inform hydraulic connectivity within and across all aquifers;
5. incorporation of the airborne electro-magnetic modelling recently completed by Geoscience Australia (and available to Adani by June 2020); and

6. revision of the conceptual understanding of the source aquifer(s) for DSC and groundwater system based on information collected from the above for incorporation into the groundwater model review (re-run).

Is this understanding correct? Does the above summary accurately reflect the CSIRO and GA advice with respect to further work required to increase certainty of the source aquifer(s) for the DSC?

In addition, the department seeks your advice on the following questions:

1. What is the level of confidence that the Clematis Sandstone aquifer is the main source for the DSC?
2. If there is a high level of uncertainty, what work should be undertaken to address and reduce the level of uncertainty regarding the potential alternative or additional source aquifers for the DSC?
3. For any additional work recommended for question 2, what is a realistic timeframe for the completion of each element of the additional work?
4. Are the groundwater drawdown trigger thresholds proposed in the new GDEMP appropriate and suitable to ensure the long-term protection of the DSC in light of your advice that the conceptual model is not fit for purpose?
5. Based on GDEMP version 11b, are there any other matters or recommendations that CSIRO and GA would highlight in order to ensure the effectiveness of the management plan in relation to environmental authority conditions?

This advice will assist the department's review and assessment of the GDEMP.

Given that the department wishes to progress the assessment of the GDEMP in a timely manner, there is some urgency to your advice. Could you please advise when you anticipate to be in a position to provide your advice.

By way of background, please refer to the GDEMP (version 11b) that was submitted to the department on 9 April 2019 (available at <https://www.adaniaustralia.com/-/media/Project/Australia/Our-Projects--Businesses/mine-environment-reporting/GDEMP-Final-V11b-19March2019.pdf?la=en&hash=C4988A8485428FD234C4A09023D08B34>), and the enclosed document 'Research Study Report – Source Aquifer to Doongmabulla Springs' that was provided to the department by Adani in November 2018.

Please do not hesitate to contact me on (07) 4987 9343 or at Melissa.Wells@des.qld.gov.au should you require further information about this request.

Yours sincerely

sch4p4(6) Personal information

Melissa Wells
Executive Director
Coal and Central Queensland Compliance

Enc.
Research Study Report – Source Aquifer to Doongmabulla Springs (revision 03, Adani, November 2018)

Date : 13/05/2019 6:17:53 PM
From : "WELLS Melissa"
To : "MERRICK Jamie"
Subject : FW: Actions
Attachment : image001.jpg;image002.png;image003.png;image006.png;

FYI



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

From: WELLS Melissa
Sent: Monday, 13 May 2019 6:16 PM
To: [REDACTED] s.73
Cc: ELLWOOD Dean
Subject: RE: Actions

Good evening [REDACTED] s.73

On behalf of Dean I can confirm DES will be in a position to provide Adani comments on the GMMP this week. As you are aware, a meeting request has been sent out for the BTFMP workshop and the meeting will take place in Rockhampton from 2.30-5pm this Wednesday. As discussed in our meeting last week, the relevant staff are unavailable to meet again later this week and the next earliest opportunity is Monday 20 May. If you have a preference for the meeting location please let me know and we can send a calendar invitation.

In regards to the questions posed to GA/CSIRO I can advise that DES is seeking clarification and feedback regarding the level of certainty around the source aquifer/s, its monitoring and management in light of the GA/CSIRO report, the resubmitted GDEMP (version 11b) and the relevant environmental authority conditions in accordance with the *Environmental Protection Act 1994*.

In relation to timing for clarification sought from GA/CSIRO, DES has expressed the urgency around the request. From discussions with GA today, DES is advised they are currently reviewing the request and will be in a position to provide certainty around timeframes later this week as the contract is in place .

We look forward to receiving your comments on the BTFMP prior to the workshop this Wednesday and finalising the BTFMP.

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

From: [REDACTED] s.73 <[REDACTED]@adani.com.au>
Sent: Monday, 13 May 2019 2:59 PM
To: ELLWOOD Dean; WELLS Melissa
Subject: Actions

Dean

Thank you for your time on Friday to talk through the finalisation of our management plans.

We have been consistent in requesting clarity of both process and timing to finalise the outstanding management plans. Based on the discussions from last Friday we understand that the following actions were committed to:

- In relation to the GMMP, DES will provide comments to Adani this week in a similar format to that provided for the BTFMP;
- Adani and DES will meet in a workshop to work through feedback on the GDEMP and GMMP. We note you offered Monday 20th May to hold this workshop. We stated our preference and desire for a meeting during the course of this week and we respectfully request that DES provide an opportunity for that timing to be met.
- For the BTFMP, on a forward looking basis, we agreed to meet on Wednesday the 15th of May to workshop the matters as expressed in

the reasons in your Attachment A.

- Prior to that workshop this Wednesday, Adani will send through high level comments in relation to the reasons set out in your Attachment A of the BTFMP decision of 2 May 2019. These comments are being provided in the context of Adani considering resubmission and are without prejudice to any other right me may have with respect to the BTFMP decision.

We also again request that DES provide to Adani the questions asked of CSIRO & GA regarding the Source Aquifer (GDEMP), and the timing in which CSIRO & GA will respond to those questions. As discussed in the meeting you undertook to provide me with this information today.

Thanks

s.73

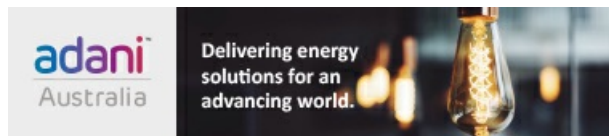
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Date : 14/05/2019 7:04:11 PM
From : "WELLS Melissa"
To : "HALLIDAY Genevieve"
Cc : "MERRICK Jamie" , "LAWRENCE Rob"
Subject : Fwd: Adani response to DES email 13 May 2019
Attachment : image568012.jpg;
FYI

Sent from my iPhone

Begin forwarded message:

From: [REDACTED] s.73 <[REDACTED]@adani.com.au>
Date: 14 May 2019 at 6:51:38 pm AEST
To: WELLS Melissa <Melissa.Wells@des.qld.gov.au>
Cc: [REDACTED] s.73 <[REDACTED]@adani.com.au>, ELLWOOD Dean <Dean.Ellwood@des.qld.gov.au>
Subject: Re: Adani response to DES email 13 May 2019

Melissa

Thank you for your email. As per my email this morning, can you please advise Adani as to when DES will provide Adani with a copy of the questions that you have provided CSIRO/GA in relation to the GDEMP?

[REDACTED] s.73
Adani Australia

Level 25, AMP Place, 10 Eagle Street, Brisbane, QLD 4000

Phone: [REDACTED] s.73

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□

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On 14 May 2019, at 6:26 pm, WELLS Melissa <Melissa.Wells@des.qld.gov.au> wrote:

[REDACTED] s.73

I refer to your email of this morning, 14 May 2019 concerning the departments review of the resubmitted Adani GDEMP.

I remind you that the review of the Adani GDEMP undertaken by CSIRO/GA (the review) was commissioned by the Department of the Environment and Energy (DOEE).

While the department was consulted by DOEE on the review's terms of reference and attended a presentation of the CSIRO/GA's Tranche 1 advice, the department did not further participate or meet with CSIRO/GA during the DOEE independent review. Nor did the department have any commercial arrangement with CSIRO/GA regarding the DOEE review.

The final review (advice/report) was not provided to department until 9 April 2019, some four weeks after multiple requests by the department to DOEE, including requests at Ministerial level.

Again, given that Adani has submitted a revised version of the GDEMP (version 11b), a version that is different to the one that the CSIRO/GA review (advice/report) relied on, the department is simply seeking clarification from CSIRO/GA about its review in light of the revised GDEMP. This clarification will assist the department in part to decide whether the GDEMP is in compliance with the conditions of the environmental authority (EA) granted to Adani under the *Environmental Protection Act 1994* (Act) for the Carmichael Mine. This is not a 'new' review of the GDEMP, and it is entirely consistent with the clear message provided to Adani that the department would rely upon advice from CSIRO/GA and not seek other third party advice.

Given the resource implications and urgency around the timeliness of the advice sought from CSIRO/GA, the department considers the requirement of a contract and fee for service by CSIRO/GA as reasonable and consistent with any necessary governance in relation to a process such as this.

To date, the department has communicated with Dr James Johnson, CEO Geoscience Australia and Ms Jane Coram, Director CSIRO in relation to the department's request.

The names of the officers of CSIRO/GA who will be involved in preparing advice for the department is a matter for CSIRO/GA. I am neither furnished with the information nor would it be appropriate for me to comment on the CSIRO/GA officers who were involved with the DOEE GDEMP review.

The department's actions in relation to the Adani GDEMP are directed solely at ensuring the proper administration of the Act and compliance with the conditions of the environmental authority.

My email of yesterday, gave you an indication on the timing of the review of the GDEMP by the department and the advice of CSIRO/GA.

Kind regards
Melissa

<image001.png> **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

From: s.73 <[redacted]@adani.com.au>
Sent: Tuesday, 14 May 2019 10:21 AM
To: ELLWOOD Dean
Cc: WELLS Melissa; s.73
Subject: Adani response to DES email 13 May 2019

Dean

I refer to Melissa Well's email sent last evening. It would appear despite DES' public claims that you would not be seeking a new or further review of the scientific evidence presented by CSIRO /GA, you are in fact engaging in another review as evidenced by Ms Well's reference to having to put in place a new contract. If this round of questions was simply an extension of the work undertaken we do not see how there would be any requirement for a new contract.

Furthermore we submit that the email fails to provide Adani with the necessary clarity regarding the "contract" between DES and CSIRO/GA or the substance of the questions that have been presented to CSIRO/GA by DES. Accordingly and consistent with our request on Friday 10 May, we once again request a copy of the questions you have asked CSIRO/GA to consider under this new contract. This request is reasonable given DES is commissioning a new review or assessment of Adani's GDEMP, and that DES previously provided Adani with a copy of the Terms of Reference for the so-called Wintle Review of the BTFMP. An ability to consider the questions as posed by the DES to CSIRO/GA would seem a normal part of this process and is clearly required to permit us to fully participate.

Could you also clarify whether the officers of CSIRO/GA engaged by DES were directly involved in the GDEMP review process commissioned by the Department of Environment and Energy? Can you also provide Adani with the names of all CSIRO/GA officers engaged for the DES contract? Can you confirm that DES were consulted and participated with DoEE in the original questions put to CSIRO/GA?

We request the above information by close of business today. Please contact me if I can provide further information.

[Redacted signature block]

E s.73 <[redacted]@adani.com.au>

P office: +61 7 3223 4800 | direct: s.73

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Date : 14/05/2019 6:27:12 PM
From : "WELLS Melissa"
To : "MERRICK Jamie" , "LAWRENCE Rob"
Subject : FW: Adani response to DES email 13 May 2019
Attachment : image002.png;image004.jpg;image001.png;image006.png;

FYI



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

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

From: WELLS Melissa
Sent: Tuesday, 14 May 2019 6:26 PM
To: [REDACTED]
Cc: [REDACTED]; ELLWOOD Dean
Subject: RE: Adani response to DES email 13 May 2019

[REDACTED]

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I remind you that the review of the Adani GDEMP undertaken by CSIRO/GA (the review) was commissioned by the Department of the Environment and Energy (DOEE).

While the department was consulted by DOEE on the review's terms of reference and attended a presentation of the CSIRO/GA's Tranche 1 advice, the department did not further participate or meet with CSIRO/GA during the DOEE independent review. Nor did the department have any commercial arrangement with CSIRO/GA regarding the DOEE review.

The final review (advice/report) was not provided to department until 9 April 2019, some four weeks after multiple requests by the department to DOEE, including requests at Ministerial level.

Again, given that Adani has submitted a revised version of the GDEMP (version 11b), a version that is different to the one that the CSIRO/GA review (advice/report) relied on, the department is simply seeking clarification from CSIRO/GA about its review in light of the revised GDEMP. This clarification will assist the department in part to decide whether the GDEMP is in compliance with the conditions of the environmental authority (EA) granted to Adani under the *Environmental Protection Act 1994* (Act) for the Carmichael Mine. This is not a 'new' review of the GDEMP, and it is entirely consistent with the clear message provided to Adani that the department would rely upon advice from CSIRO/GA and not seek other third party advice.

Given the resource implications and urgency around the timeliness of the advice sought from CSIRO/GA, the department considers the requirement of a contract and fee for service by CSIRO/GA as reasonable and consistent with any necessary governance in relation to a process such as this.

To date, the department has communicated with Dr James Johnson, CEO Geoscience Australia and [REDACTED] Director CSIRO in relation to the department's request.

The names of the officers of CSIRO/GA who will be involved in preparing advice for the department is a matter for CSIRO/GA. I am neither furnished with the information nor would it be appropriate for me to comment on the CSIRO/GA officers who were involved with the DOEE GDEMP review.

The department's actions in relation to the Adani GDEMP are directed solely at ensuring the proper administration of the Act and compliance with the conditions of the environmental authority.

My email of yesterday, gave you an indication on the timing of the review of the GDEMP by the department and the advice of CSIRO/GA.

Kind regards
Melissa

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

P 07 4987 9343

Date : 16/05/2019 5:39:36 PM
From : "WELLS Melissa"
To : "MERRICK Jamie" , "LAWRENCE Rob"
Subject : Fwd: Adani response to DES email 13 May 2019
Attachment : image002.png;image003.jpg;
FYI

Sent from my iPhone

Begin forwarded message:

From: WELLS Melissa <Melissa.Wells@des.qld.gov.au>
Date: 16 May 2019 at 5:15:23 pm AEST
To: [REDACTED] s.73 <[\[REDACTED\]@adani.com.au](mailto:[REDACTED]@adani.com.au)>
Cc: [REDACTED] s.73 <[\[REDACTED\]@adani.com.au](mailto:[REDACTED]@adani.com.au)>, ELLWOOD Dean <Dean.Ellwood@des.qld.gov.au>
Subject: RE: Adani response to DES email 13 May 2019

Hi [REDACTED] s.73

As stated, the CSIRO/GA advice is to provide clarification to the department about its original review in light of the revised GDEMP. Adani will be provided with a copy of the CSIRO/GA advice once it becomes available.

Kind regards,
Melissa.



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

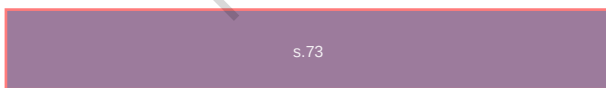
P 07 4987 9343

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

From: [REDACTED] s.73 <[\[REDACTED\]@adani.com.au](mailto:[REDACTED]@adani.com.au)>
Sent: Tuesday, 14 May 2019 6:52 PM
To: WELLS Melissa
Cc: [REDACTED] s.73 ELLWOOD Dean
Subject: Re: Adani response to DES email 13 May 2019

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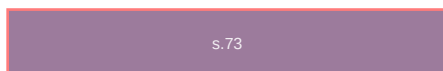


Adani Australia

[Level 25, AMP Place, 10 Eagle Street, Brisbane, QLD 4000](#)

Phone [REDACTED] s.73

[REDACTED] s.73 <[\[REDACTED\]@adani.com.au](mailto:[REDACTED]@adani.com.au)>



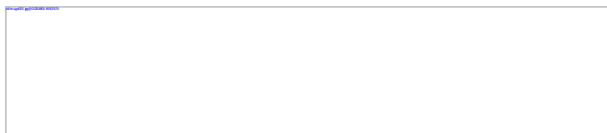
E [REDACTED] s.73 <[\[REDACTED\]@adani.com.au](mailto:[REDACTED]@adani.com.au)>

P office: +61 7 3223 4800 | direct: [REDACTED] s.73

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s.73

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Kind regards
Melissa

<image001.png> **Melissa Wells**
Executive Director
Coal and Central Qld Compliance
Department of Environment and Science

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PO Box 3028, Emerald QLD 4720

From: s.73 <s.73@adani.com.au>

Sent: Tuesday, 14 May 2019 10:21 AM

To: ELLWOOD Dean

Cc: WELLS Melissa; s.73

Subject: Adani response to DES email 13 May 2019

Dean

I refer to Melissa Well's email sent last evening. It would appear despite DES' public claims that you would not be seeking a new or further review of the scientific evidence presented by CSIRO /GA, you are in fact engaging in another review as evidenced by Ms Well's reference to having to put in place a new contract. If this round of questions was simply an extension of the work undertaken we do not see how there would be any requirement for a new contract.

Furthermore we submit that the email fails to provide Adani with the necessary clarity regarding the "contract" between DES and CSIRO/GA or the substance of the questions that have been presented to CSIRO/GA by DES. Accordingly and consistent with our request on Friday 10 May, we once again request a copy of the questions you have asked CSIRO/GA to consider under this new contract. This request is reasonable given DES is commissioning a new review or assessment of Adani's GDEMP, and that DES previously provided Adani with a copy of the Terms of Reference for the so-called Wintle Review of the BTFMP. An ability to consider the questions as posed by the DES to CSIRO/GA would seem a normal part of this process and is clearly required to permit us to fully participate.

Could you also clarify whether the officers of CSIRO/GA engaged by DES were directly involved in the GDEMP review process commissioned by the Department of Environment and Energy? Can you also provide Adani with the names of all CSIRO/GA officers engaged for the DES contract? Can you confirm that DES were consulted and participated with DoEE in the original questions put to CSIRO/GA?

We request the above information by close of business today. Please contact me if I can provide further information.

s.73

E s.73 @adani.com.au

P office: +61 7 3223 4800 | direct: s.73

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17 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 Jamie

Adani Mining Pty Ltd – Groundwater Management Plans

We refer to our previous correspondence in relation to groundwater management plans, in particular the Groundwater Dependent Ecosystems Management Plan (**GDEMP**) and the Groundwater Monitoring and Management Plan (**GMMP**) for Adani Mining Pty Ltd (**Adani**), and in particular our letter to you more than a month ago on 12 April 2019 which sought clarity from you on the process and timing for approval of those plans. In the most recent email from your Ms Melissa Wells at 5:15pm on 16 May 2019, we have been advised by the Department of Environment and Science (**DES**) that:

"...the CSIRO/GA advice is to provide clarification to the department about its original review in light of the revised GDEMP. Adani will be provided with a copy of the CSIRO/GA advice once it becomes available..."

This latest correspondence from Ms Wells was in response to our request where we had once again sought that DES provide us with the questions that DES has put to CSIRO / GA. We understand that these questions form the basis for a new contract being entered into between DES and CSIRO / GA. The latest email from DES is, at best, unresponsive and we ask:

Question 1: Can the DES please provide us with the questions that have been asked of CSIRO / GA?

It would seem fairer and simpler if you just provided us with these basic details so we have a proper opportunity to understand and engage in the process.

However, given the apparent unwillingness to meet this very simple request we have also submitted a formal Right to Information application (copy attached). As that RTI application exclusively relates to ourselves, DES and then to CSIRO / GA (who seem able to respond very rapidly to such requests) it is our expectation that this application will be dealt with as a priority.

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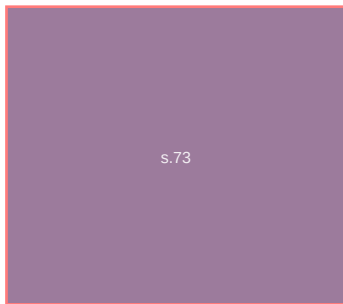
Question 2: When will you receive the advice from CSIRO / GA?

Separately, with respect to the latest correspondence from Ms Wells, there is a reference to advice from CSIRO / GA and its provision to us when it becomes available. We would expect it is a very short time frame given what seems to be, by implication, a strictly limited scope and we wish to be prepared to respond once it is available.

We are only seeking clarity as to process and timing and would appreciate the ability to be able to fully engage with the DES with a proper understanding of what is happening.

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



Attachment 2019 05 16 Application RTI to DES re GMMP and GDEMP (Lodged).pdf

cc Ms Mellissa Wells Melissa.Wells@des.qld.gov.au
Mr Dean Ellwood Dean.Ellwood@des.qld.gov.au

ATTACHMENT A – DES comments on GDEMPv11b 7 June 2019 (to be read in conjunction with the CSIRO/GA advice dated 7 June 2019).

The plan must include detailed baseline research to establish the source aquifer(s) for groundwater supply to the GDE

Requirements prior to model re-run:

1. Adani must make a commitment to undertake and complete the following additional work progressively to improve the understanding of the spring source aquifers prior to the 2 year model re-run.
 - Hydrogeochemical analysis of samples from different springs groups within each spring complex to provide better understanding and discern the source aquifers of the Doongmabulla Springs Complex. Bulk hydrochemistry must be completed within 3 months of approval and tracer analyses within 12 months. Hydrogeochemical analyses must include but not limited to:
 - a. noble gases - e.g. helium to identify any deeper groundwater contributes to the springs (id of source aquifers);
 - b. radioactive noble gases to identify source aquifer of recent (decades) to intermediate (centuries) and
 - c. strontium isotopes – to identify the source rock of a particular groundwater system.
 - Incorporation of the use of isotope and ageing tracers in the above hydrogeochemical analysis;
 - A comprehensive review of groundwater level and quality data from relevant aquifers including data from new proposed nested bores in the vicinity of Doongmabulla Springs Complex;
 - Undertake hydrochemistry interpretation from surface and spring samples to provide more detailed hydrogeology system understanding;
 - Detailed geological mapping including cores from bores drilled in the vicinity of Doongmabulla Springs Complex and facies modelling to better inform hydraulic connectivity within and across all aquifers;
 - At new monitoring locations, use the opportunity to acquire drill cores to better understand the intact hydrostratigraphy being drilled through to inform the conceptual model. Conduct test on core samples to assess and quantify hydraulic properties being implemented in the numerical model. Completion of core analysis within 2 years.
 - Incorporation of the airborne electro-magnetic (AEM) modelling recently completed by Geoscience Australia (and available to Adani by June 2020). Adani must undertake specific interpretation and analysis of AEM data. The analysis should be conducted with consideration of relevant site-specific data and alternative conceptualisations to be tested to ensure the interpretation derives appropriate conclusions regarding hydrogeology at the scale of investigation of interest to Adani. Adani's AEM investigation should articulate how the objectives of the AEM data analysis will seek to improve hydrogeological knowledge to ensure the interpretation yields desired outcomes;
 - Revision of the conceptual understanding of the source aquifer(s) for Doongmabulla Springs Complex and the groundwater system based on information collected from the above for incorporation into the groundwater model review (re-run);

- Undertake measures identified by the Queensland Herbarium in the Lake Eyre Basin Springs Assessment project for the Doongmabulla Springs Complex including seismic surveys within 12 months;
 - Optimise the spatial distribution of monitoring bores, including nested or co-located bores intersecting different aquifer units, to enable improved future analysis of water level and hydrochemistry data.
2. To address the level of uncertainty of the source aquifer(s) for all the Groundwater Dependent Ecosystems and to provide transparency and a better appreciation of the limitations and opportunities for further data collection or modelling, the department recommends that Adani make the following commitments:
- a. Adani make a commitment to systematically address all the sources of uncertainty and other modelling limitations identified by the CSIRO/GA reviews when the groundwater model is re-run and reviewed as required by EA condition E6 (to be conducted within 2 years of commencement of any mining activities associated with the box cut excavation).
 - b. For the model re-run, Adani make a commitment to sample the entire plausible parameter space and make predictions probabilistically by spreading attention across refining distributions of the most sensitive model parameters and efficient stochastic modelling (Turnadge et al. 2018).
 - c. For the model re-run, Adani make a commitment to define scale dependent parameters such as hydraulic conductivity at the appropriate spatial scale i.e. commensurate with the size of the numerical grid cell of the groundwater model.
 - d. For the model re-run, Adani make a commitment to run a sufficient range of plausible scenarios that encompass the range of identified uncertainties.
 - e. Adani make a commitment to undertake and include an uncertainty estimation in accordance with the Australian Groundwater Guidelines based on the 2 year re-run.

The plan must include detailed baseline research to establish GDE ecosystem pressure response to groundwater level/pressure fluctuation

The plan must include a description of the potential impact on each GDE from each project stage including impacts from subsidence, mine dewatering of aquifers, water discharge, hydrological changes and weed and pest infestation

Requirements:

Groundwater drawdown triggers must be set for all monitoring locations for which water level thresholds are defined and use a timeframe that is comparable with routine monitoring data assessment and agreed groundwater model review periods.

The bore locations must consider the localised changes that may impact on groundwater dependent ecosystems and changes to groundwater conditions following planned longwall panel excavation beneath of two of the 3 interim drawdown rate trigger bores.

A commitment to install new groundwater drawdown trigger threshold bore to replace those lost to mining/underground mining must be made.

To ensure the effective management of these unique ecosystems the GMMP and the GDEMP must be consistent and ‘talk to each other’.

- Address all inconsistent descriptions and reporting of groundwater drawdown trigger thresholds between the GDEMP and GMMP as detailed in section 4 of the CSIRO/GA advice 7 June 2019.
- Address inconsistencies in the level of commitment for corrective actions for each GDE that are applied when groundwater drawdown trigger levels are exceeded as detailed in section 5 of the CSIRO/GA advice 7 June 2019.
- Address inconsistencies between the GDEMP and GMMP with regard to adaptive management measures and commitments as detailed in section 5 of the CSIRO/GA advice 7 June 2019.



Department of
Environment and Science

Our Ref: GDEMP_CSIRO/GA

7 June 2019

s.73

Adani Mining Pty Ltd
Level 25, 10 Eagle Street
Brisbane QLD 4000

By email: s.73 [@adani.com.au](mailto:s.73@adani.com.au)

Dear s.73

The Department of Environment and Science (the department) has now received the clarification and advice sought from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Geoscience Australia (GA) in relation to Adani's Groundwater Dependent Ecosystem Management Plan (GDEMP).

The department has now considered this advice and requires the matters set out in Attachment A to be addressed to progress the finalisation of the GDEMP.

It is the department's view that the advice from CSIRO/GA reinforces advice provided by the department to date and is not inconsistent with discussions held previously between the department and Adani.

Accordingly, this advice should be read and addressed in conjunction with the preliminary GDEMPv11b comments provided on the 31 May 2019 and discussed at our meeting on the 6 June 2019.

To provide further background and context a copy of the CSIRO/GA advice is enclosed.

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 GDEMP v11b (dated 7 June 2019); and
Attachment B – Carmichael Coal Mine, Advice on Groundwater Dependent Ecosystem
Management Plan v11b to the Queensland Department of Environment and Science (June
2019).*

Published on DES Disclosure Log
RTI Act 2009



Department of
Environment and Science

Our Ref: Groundwater Dependent Ecosystem Management Plan

13 June 2019

s.73

Adani Mining Pty Ltd
Level 25, 10 Eagle Street
Brisbane QLD 4000

Dear s.73

As a delegate under the Environmental Protection Act 1994, I have decided to approve the *Groundwater Dependent Ecosystem Management Plan – Carmichael Coal Mine Project version 12a (June 2019)* as required by the Carmichael Coal Mine Environmental Authority (EPML01470513). The submitted Groundwater Dependent Ecosystem Management Plan satisfies the requirements of environmental authority conditions I11, I12, I13 and the definition requirements in Appendix A of the environmental authority.

Should you require any further information, please contact me on telephone (07) 4987 9356 or by email at juliana.mccosker@des.qld.gov.au.

Yours sincerely

sch4p4(6) Personal information

Juliana McCosker
Manager
Business Centre Coal
Coal and Central Queensland Compliance
Environmental Services and Regulation