



From: COBBAN Thomas [Thomas.Cobban@ehp.qld.gov.au]
Sent: Thursday, 17 July 2014 12:54 PM
To: BLUMKE Peter
Subject: RE: Washpool Coal Mine Project - EPBC 2009/5240 [SEC=UNCLASSIFIED]

Hi Peter,

That is fine.

Regards,

Thomas Cobban

Graduate Environmental Officer | BScBiol/Geo, MEnvMan, MEIANZ
Environmental Services and Regulation - Mining | Central Region
Department of Environment and Heritage Protection
99 Hospital Road Emerald QLD 4720
PO Box 3028
Tel: (07) 4987 9308
Email: Thomas.Cobban@ehp.qld.gov.au
Web: www.ehp.qld.gov.au

EHP symbol



From: BLUMKE Peter
Sent: Thursday, 17 July 2014 12:40 PM
To: COBBAN Thomas
Subject: FW: Washpool Coal Mine Project - EPBC 2009/5240 [SEC=UNCLASSIFIED]

Hi Thomas

Please check my advice below to the DOTE and advice any changes.

Regards

Peter

"I just wish to confirm that the proponent for Washpool Coal Mine project has lodged an EA application and an amended EM plan on 2 July 2014 and EHP is currently reviewing the EM plan to make sure it is adequate and that all requested issues have been addressed in particular issues with surface water and groundwater. The time frame to review of the EM plan is 30 business days that would finish on 13 August 2014. Should the EM plan be adequate than EHP has 5 business days to issue the Environmental authority to the proponent. If the EM plan is not adequate the proponent would be issued with a notice requesting more information to be provided in the EM plan."

Peter Blumke

Statewide Environmental Assessments
Department of Environment and Heritage Protection

■
GPO Box 2454 Brisbane Q 4001
Tel: (07) 3330 5599 Fax: (07) 3330 5875
ehp-email-signature



From: Keast, Justin [<mailto:Justin.Keast@environment.gov.au>]
Sent: Thursday, 17 July 2014 9:46 AM
To: BLUMKE Peter
Subject: Washpool Coal Mine Project - EPBC 2009/5240 [SEC=UNCLASSIFIED]

Hi Peter

Further to our previous discussion, can you please advise if Aquila Resources Limited has submitted their application for an Environmental Approval (EA) for the Washpool Coal Mine Project? Once this application is received what are steps involved in order to complete an EA and how long do these steps normally take.

Many thanks

Justin Keast | Assessment Officer | Queensland 3 and Sea Dumping
Environment Assessment and Compliance Division | Department of the Environment
(02) 6275 9953 | justin.keast@environment.gov.au

Description: frog email



RTI DL RELEASE - EHP

From: COBBAN Thomas [Thomas.Cobban@ehp.qld.gov.au]
Sent: Monday, 4 August 2014 3:26 PM
To: BLUMKE Peter; 'Keast, Justin'
CC: CLARKE Liz; LOVEDAY Chris
Subject: Response to request for information: Washpool Coal Mine Project (EPBC 2009/5240)
Attachments: Washpool Coal Mine Revised EM Plan June 2014.PDF

Good Morning All,

As per the request made on the 31 July 2014 by sch4p4(6) please find the revised Environmental Management Plan (EM Plan) submitted to the Department of Environment and Heritage Protection on the 2 July 2014. A copy of the signed draft environmental authority was also requested, however the department has not been able to draft an environmental authority for the following reasons;

- The proponent has proposed outdated environmental authority conditions which would have been relevant at the time of the EIS, however due to considerable delays in submitting a revised EM Plan (26 months), new model mining conditions now exist which will require application to this project. Before the department can draft an environmental authority the proponent will need to update the revised EM Plan to reflect the model mining conditions that are available at the following link <http://www.ehp.qld.gov.au/land/mining/pdf/model-mining-conditions-em944.pdf>.
- The submitted EM Plan has a number of information gaps and issues in the following areas which will be required attention prior to any drafting of an environmental authority;
 - Surface water;
 - Site water management;
 - Receiving environmental monitoring program; and
 - Mine affected water releases.
 - Groundwater;
 - Alluvial Cainozoic aquifer definition;
 - Surface water interaction; and
 - Final void interaction.
 - Land;
 - Rehabilitation requirements;
 - Rehabilitation success criteria; and
 - Final voids.
 - Biodiversity offsets;
 - Deed of agreement;
 - Ecological equivalence assessment; and
 - Offset matters.

The department has an August 13 2014 deadline to either approve or refuse the revised EM Plan. If the EM Plan was approved, assessment of the environmental authority under the *Environmental Protection Act 1994* would commence, whereby a draft environmental authority would be approved at least 20 business days after the EM Plan approval. However, given the number of information gaps and issues listed above it is likely the EM Plan will be refused and EHP will liaise with the proponent regarding the way forward.

EHP will keep DoTE informed of all decisions relating to this project. If you require further information, feel free to call on the below details.

Regards,

Thomas Cobban


Graduate Environmental Officer
Environmental Services and Regulation - Mining | Central Region
Department of Environment and Heritage Protection
99 Hospital Road Emerald QLD 4720
PO Box 3028
Tel: (07) 4987 9308
Email: Thomas.Cobban@ehp.qld.gov.au
Web: www.ehp.qld.gov.au

EHP symbol



RTI DL RELEASE - EHP



From: Blumke Peter [Peter.Blumke@ehp.qld.gov.au]
Sent: Monday, 14 May 2012 10:35 AM
To: Bennett Jeremy
CC: Legg William
Subject: FW: Washpool Coal Mine project

Follow Up Flag: Follow up
Flag Status: Completed

Hi Jerry

Can you liaise with Bill regarding groundwater for the EA

Regards

Peter

Peter Blumke
Statewide Environmental Assessments
Tel: (07) 3330 5599 Fax: (07) 3330 5754

From: Legg William
Sent: Monday, 14 May 2012 10:23 AM
To: Blumke Peter
Cc: Loveday Chris
Subject: RE: Washpool Coal Mine project

Hi Peter, Chris

I have read the groundwater section in the report and i think that is ok considering what we had to work with. I assume that ES mining will draft the Ea terms so let me know if you need me to review

thanks

W Legg
Principal Project Officer (hydrology)
Central West Region
Rockhampton
(ph) 07 48373467

From: Blumke Peter
Sent: Friday, 11 May 2012 9:25 AM
To: Loveday Chris
Cc: Bennett Jeremy; Cunningham Susan; Wirth Jacqueline; Legg William
Subject: Washpool Coal Mine project

Hi Chris

Please find attached EIS assessment report for the Washpool Coal Mine project that Lindsay approved yesterday.



I'll give Jeremy an update of the project.

Any queries, please contact me.

Regards

Peter

Peter Blumke

Statewide Environmental Assessments

Tel: (07) 3330 5599 Fax: (07) 3330 5754

RTI DL RELEASE - EHP

Meeting agenda

Date: 26 July 2012
Time: Start: 09:00am Finish: 10:30am
Location: Small Conference Room, Level 2
Government Building
209 Bolsover Street
Rockhampton

Map attached
Not applicable

Meeting title: Washpool EIS & EMP

Purpose: Discussion regarding recommendations from the EIS assessment report concerning EHP's expectations around groundwater, s.73 irrelevant
s.73 irrelevant information

Contact	Jeremy Bennett Senior Environmental Officer jeremy.bennett@ehp.qld.gov.au 07 4837 3489
Attendees	Jeremy Bennett, Environmental Services - Mining Callum Gawne, Environmental Services - Mining Damien Taylor, Sinclair Knight Merz (SKM) Livia Maiorana, Project Development Manager, Aquila Resources Ltd (ARL)
Apologies	No apologies

Agenda items:

1. Open meeting
2. Next meeting – SKM/ARL to advise
3. Meeting close

DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION

Topic of Discussion	SKM/ARL Comment	EHP Comments/Outcome
Number of groundwater monitoring bores	Requested clarification regarding number of monitoring bores required.	SKM/ARL were advised that the number of monitoring bores was insufficient. Numbers required were as recommended in the EIS Assessment Report dated May 2012. SKM/ARL indicated they would investigate and add additional wells as recommended
s.73 irrelevant information		
Monitoring private bores	Private bores had not been sampled as they are 4 – 5km away. Modelling suggests that the private bores are outside the zone of influence. SKM/ARL advised they are still	EHP responded that the bores will need to be monitored to verify the modelling and to ensure there is no impact from mining activities.

DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION

	proposing to monitor the bores.	
Data gaps in groundwater monitoring	It was indicated that data was not obtainable as the site was flooded and inaccessible.	
Installation of new bores	Any new bores wouldn't be constructed until the operation has begun and the Plan of Op's has been approved.	EHP indicated construction of new monitoring bores may need to be considered once the business case has been reviewed.
s.73 irrelevant information		
Strategic cropping land	Queried SCL assessment.	EHP advised that the EA could not be issued until the assessment has been completed.
Draft EA	Queried if the draft EA can continued to be reviewed and amended.	EHP advised that the EA can continue to reviewed and re-drafted prior to the EMP plan being finalised.
s.73 irrelevant information		

DEPARTMENT OF ENVIRONMENT AND HERITAGE PROTECTION

General Comments from SKM/ARL

- Darrell Hunter is the Washpool project manager
- s.73 irrelevant information
-
-
-
-
-
- SKM/ARL have been in contact with Lindsay Delzoppo

ORIGINAL RELEASE - EHP

From: Taylor, Damien J (SKM) [DTaylor@globalskm.com]
Sent: Wednesday, 7 August 2013 11:13 AM
To: BENNETT Jeremy; FRANKISH John; DUNLOP Kylie
CC: Livia Maiorana (lmaiorana@aquilaresources.com.au); aquademail@gmail.com
Subject: Washpool Coal Project - Meeting Adenda - 12:30
Attachments: EHP Meeting Agenda_Rockhampton_080813.docx

Good Morning All

Please find attached a brief agenda for tomorrow's meeting to discuss the Washpool Coal Project.
Looking forward to meeting you again, discussing the project and planning a path forward for issuing the EA.

Any questions please don't hesitate to call.

Kind Regards

Damien Taylor

Project Manager
Water & Environment

Sinclair Knight Merz

Cnr Cordelia & Russel Streets, South Brisbane QLD 4101

PO Box 3848 South Brisbane QLD 4101

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Purpose of Meeting	Washpool Coal Mine Project		
Prepared By	Damien Taylor	Phone No	+ 61 7 3026 7253 / +61 [sch4p4(
Place of Meeting	Small conference room Level 2, 209 Bolsover Street , Rockhampton	Date/Time	12:30 to 14:30 Thursday, 8 August 2013
Invitees	Jeremy Bennett – EHP, SEO- ES Mining John Frankish – EHP, ES Mining Team Leader Kylie Dunlop – EHP, Greentape Champion Livia Maiorana – Aquila, Project Development Manager Damien Taylor – SKM, EIS Project Manager Alan Wade – Aquade, Principal Hydrogeologist	Email	jeremy.bennett@ehp.qld.gov.au john.frankish@ehp.qld.gov.au kylie.dunlop@ehp.qld.gov.au lmaiorana@aquilaresources.com.au dtaylor@globalskm.com aquademail@gmail.com

Item		Presenter	Time
1)	s.73 irrelevant information		
2)			
3)			
4)			
5)	Groundwater Update – Provide a brief summary of the third party groundwater findings and cross reference in relation to EHP's Assessment Report Comments.	DT & AW	13:30 – 13:50
6)	Discussion on actions to be conducted to finalise EM Plan / REMP (i.e. groundwater, surface water).	All.	13:50 – 14:10
7)	s.73 irrelevant information		
8)	Summary & Close.	DT	14:25 – 14:30

From: Taylor, Damien J (SKM) [DTaylor@globalskm.com]
Sent: Wednesday, 7 August 2013 3:24 PM
To: BENNETT Jeremy
CC: Livia Maiorana (lmaiorana@aquilaresources.com.au); aquademail@gmail.com
Subject: RE: Washpool Coal Project - Meeting Adenda - 12:30
Attachments: 2013245-LTR-001A_combined.pdf

Good Afternoon Jeremy

A part of tomorrow's meeting, I've asked Alan Wade to join us. Alan has recently carried out a third party review of the Groundwater component of the project against the EIS report, modelling and comments provide by EHP in the Assessment report and has provided a number of suggestions for a way forward.

I've attached his Draft report for your information, and Alan will take you through this and his thoughts tomorrow. Please note that this report is in draft form and following our meeting tomorrow, Alan will finalise and issue the final to Aquila.

Kind Regards

Damien Taylor

Power & Energy Portfolio Manager (Qld)
Water & Environment

Sinclair Knight Merz

Cnr Cordelia & Russel Streets, South Brisbane QLD 4101

T +61 7 3026 7253 F +61 7 3026 7306 M +61 sch4p4(6) E dtaylor@globalskm.com

www.globalskm.com

From: Taylor, Damien J (SKM)
Sent: Wednesday, 7 August 2013 11:13 AM
To: Jeremy.Bennett@ehp.qld.gov.au; 'john.frankish@ehp.qld.gov.au'; 'kylie.dunlop@ehp.qld.gov.au'
Cc: Livia Maiorana (lmaiorana@aquilaresources.com.au); aquademail@gmail.com
Subject: Washpool Coal Project - Meeting Adenda - 12:30

Good Morning All

Please find attached a brief agenda for tomorrow's meeting to discuss the Washpool Coal Project. Looking forward to meeting you again, discussing the project and planning a path forward for issuing the EA.

Any questions please don't hesitate to call.

Kind Regards

Damien Taylor

Project Manager
Water & Environment

Sinclair Knight Merz

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RTI DL RELEASE - EHP



Aquade Reference: 2013245-LTR-001

7 August 2013

Damien Taylor
Project Manager – Washpool Coal Mine Project EIS
Sinclair Knight Merz
32 Cordelia Street
PO Box 3848
South Brisbane QLD 4101 Australia

Dear Damien,

Washpool Coal Mine Project Hydrogeological Review

1.0 Introduction and Background

1.1 Scope of Work

This scope of this document was defined in a letter from Damien Taylor to Alan Wade, on 22 July 2013 and subsequent telephone conversations.

This document provides an independent review of the hydrogeological work undertaken by SKM for the Environmental Impact Statement (EIS) for the Washpool Coal Mine Project (hereafter referred to as the Washpool Project).

It is understood that the intent of the review is to either confirm the findings and/or make recommendations for additional works and detail what those may be and the timing of these works. The scope of work includes review of the references in Table 1. The reference numbers listed in Table 1 are used hereafter to refer to those references.

Table 1. Reference List in Chronological Order

Reference #	Reference	Source	Date
1	Final Terms of Reference Washpool EIS	DERM	July 2010
2	Washpool EIS Chapter 03 – Project Description	SKM	Feb 2012
3	Washpool EIS Chapter 04 – Land Resources	SKM	Feb 2012
4	Washpool EIS Chapter 07 – Surface Water	SKM	Feb 2012
5	Washpool EIS Chapter 08 - Groundwater	SKM	Feb 2012
6	Washpool EIS Appendix G	SKM	Feb 2012
7	Washpool EIS Assessment Report Section 4.8.3	DEHP	May 2012
8	Draft Washpool Environmental Authority Conditions	DERM	July 2012
9	IESC Guidelines for Proposals Relating to the Development of Coal Seam Gas and Large Coal mines where there is a Significant Impact on Water Resources	IESC	Feb 2013

Note: the primary references reviewed are bolded.

The initial version of the EIS was not reviewed by this author. In addition, the groundwater model which was used to evaluate the potential impact of dewatering was not reviewed in detail by the author. However, Reference 6, which was reviewed, includes an overview of the groundwater model used.

2.0 Author's Area of Expertise

The author has 25 years of experience as a hydrogeologist in Australia, New Zealand, the USA, Canada and China. After having been a Principal Hydrogeologist at two major international consulting firms between 1999 and 2010, the author set up the independent consulting company, Aquade, in 2010. Through this company, the author provides independent advice, analysis, reviews, audits and expert witness statements to a variety of clients in the public and private sectors both in Australia and overseas. The author is currently Chairperson of the International Association of Hydrogeologists in Victoria, Australia

The attached Curriculum Vitae provides a summary of the author's qualifications and experience as well as a list of specific project experience. Specific areas of expertise include scoping and directing large-scale studies which incorporate field investigations and modelling, including environmental impact assessments.

3.0 Review and Comments on the DEHP Assessment Report

This section summarises the main issues raised by DEHP and this reviewer's comments regarding those issues. In addition, Table 2 considers in more detail several specific points made by DEHP, with comments by the author.

3.1 Summary of Issues Identified by DEHP

Reference 7, the DEHP Assessment Report, provides a review by the Queensland Government of Reference 5, the hydrogeology section of the Washpool Project EIS. Reference 7 identifies several issues with Reference 5.

The primary issues, as described by DEHP, concern the Conceptual Hydrogeological Model (CHM), specifically:

- The CHM is based on limited hydrogeological data. DEHP asks for more detail on the hydrostratigraphy, water levels, quality and yields.
- Overburden alluvial sediments should be separated into Tertiary and Quaternary sediments.
- More detail on the hydraulic relationship between the aquifers and the Mackenzie River.
- Insufficient monitoring wells.
- Gaps in the groundwater monitoring program, i.e. in the collection of transient data.
- Lack of background water quality in the alluvium.

In addition, Reference 7 asks for identification of all existing groundwater wells both on site and at neighbouring sites, i.e. a survey of landowner bores.

Reference 7 also asks for proposed mitigation measures for potential dewatering impacts on the Mackenzie River.

Reference 7 includes the statement that "the assessment of the potential groundwater impacts in the first version of the EIS was lacking in detail and clarity and the subsequent

additional information provided by the proponent in response to requests from the former DERM was not as complete as EHP was seeking.”

3.2 Aquade Comments Regarding Conceptualisation

The most important information of relevance to the potential leakage rate from the Mackenzie River to a mine dewatering system is:

1. The stratigraphy between the proposed Mine Pit and the river to the north and between the proposed Mine Pit and the alluvial sediments, Coal Mine Lagoon and river to the west. These are the areas where additional boreholes and monitoring wells would be most useful in minimising uncertainty in the conceptual hydrogeology and, therefore, in estimates of losses from the river.
2. Hydraulic properties of the saturated materials, in particular those areas, particularly the most permeable saturated materials.

In particular, the magnitude of leakage flux from the river towards the dewatering system will likely depend largely on whether the top of bedrock is typically below the water table or not. The conceptualisation is that the bedrock highs to the north and the west of the Mine Pit will restrict the flux to the dewatering system because the water table is within the bedrock to the north and only slightly above the top of the bedrock to the west. Therefore, there would be no relatively high transmissivity pathway from the river through the Cainozoic sediments to the mine dewatering system.

It is understood from Reference 5 and verbal communications between the author and SKM that Borehole AQ112 is located in an area of bedrock outcrop forming the river bank, where the ground surface is above the highest potential level of flooding of the river. Therefore, the water table is within the Permian bedrock at this location. Confirmation that the water table level is within the Permian bedrock between the proposed Mine Pit and the river to the north is an important part of the conceptualisation. Additional boreholes and monitoring wells between and/or to the south of wells AW111 and AQ112 would facilitate this.

The drilling method for any new monitoring wells should be a dry method such that the level of the water table can be established during drilling. For any borehole drilled through Tertiary alluvium which proves to be dry through those sediments, it would be preferable to drill further until the water table is encountered in the bedrock and complete a bedrock monitoring well rather than to complete a dry well in the overburden. Alternatively, the borehole could be abandoned and simply used to log the stratigraphy at that point (in particular the elevation of the top of bedrock) and no monitoring well installed.

There are some discrepancies in groundwater elevations as presented in different tables and figures in Reference 5, which may have contributed to the lack of clarity highlighted by DEHP. The author has been informed by SKM that this is likely to be due to inaccurate ground surface elevations from a GPS instrument, which were used in Table 8-4 of Reference 5 and in several subsequent figures. It is understood that the elevations shown in Figure 8-9 of Reference 5, which compares groundwater levels and river levels, are derived from the digital elevation model rather than from a GPS instrument and are, therefore, considered more likely to be correct. Bedrock groundwater levels which are illustrated in Figure 8-9 of Reference 5 support the conceptualisation in the text that the alluvium above the coal within the proposed Mine Pit area is unsaturated.

When Reference 5 is revised, Table 4 and the subsequent figures which present data from this table should also be revised. In particular, the conceptualisation would likely be further clarified by revising the north-south cross section to a line between the AW111/112 area and the proposed Mine Pit, showing actual borehole logs, screened intervals and groundwater

elevations in monitoring wells as well as interpreted stratigraphy between the boreholes. The author anticipates this will also help to clarify the conceptualisation of surface water-groundwater interaction in this area.

The author recommends that, if the datum elevations of the existing monitoring wells have not been accurately surveyed, they should be resurveyed at the time that any new wells are surveyed, as precision in the hydraulic heads and gradients translates to greater certainty in the CHM and, in turn, in the numerical model used to predict impacts. In particular, the accurate evaluation of the vertical head difference at nested wells such as AQ112 is strongly sensitive to this datum accuracy.

In summary, this author agrees with the most important aspects of the CHM as presented in Reference 5 but also agrees that there are data gaps and the existing data could be presented with greater clarity and in greater detail. Additional monitoring wells are recommended around the perimeter of the proposed Mine Pit, particularly to the north and west, rather than within the proposed Mine Pit. In this way they can be used for monitoring during mining operations as well as for baseline monitoring. Boreholes drilled to the top of bedrock within the area of the proposed Mine Pit are likely to be dry. If the Cainozoic alluvials are found to be saturated at any location, a monitoring well should be completed in those sediments at that location. However, from the reported exploration drilling, this is considered unlikely in the vicinity of the proposed Mine Pit.

It is recommended that the drilling and the installation of new wells be documented by a hydrogeologist, responsible for logging the borehole and documenting the details of the well construction and development. Any new wells should also be slug tested. AQ105 should also be slug tested as it is the only bore in the alluvium.

However, in the opinion of this author, it is not necessary to have a comprehensive transient database, i.e. hydrographs with multiple points in time, in order to interpret baseline conditions. If it were required to perform a transient calibration to meet the requirements of the EIS, it would be justifiable. However, calibration to transient conditions is not required and the level of effort involved in doing so would not be justified. The typical baseline conditions, i.e. during periods of relatively low flow in the river, are more important than the conditions during high river stages from an environmental impact perspective. In addition, the author does not concur with the requirement in Reference 8 for the groundwater monitoring program to have at least twelve sampling events to determine background groundwater quality.

3.3 Aquade Comments Regarding Mitigation and Bore Survey

In order to put the potential impact on the Mackenzie River in perspective, it would be helpful to compare the predicted leakage rate from the river due to dewatering with the river low flow and average flow, with the licensed amount of annual water extraction (from the weir pond if known) and with the expected rate of evaporation from the pond of Bedford Weir during a typical dry season.

Notwithstanding the expectation of minimal impact in terms of river flow, there should be a commitment from the project proponent to mitigate should there be significant impacts to the river as a result of dewatering. To provide the necessary level of certainty regarding whether greater impacts do, in fact, take place during dewatering, the author recommends a commitment be included in the EIS to monitor drawdowns and EC at select wells as well as dewatering pumping rates and to use this information to update the groundwater model during dewatering. The response of the system during long-term pumping is the optimum method to minimize uncertainty with the leakage rate. In this way, Washpool Coal will be able to use the model to demonstrate what the flux is from the river during dewatering.

The off-site bores/wells shown in Reference 5 are likely to be sustained by the river. However, there may be other wells that are currently unknown because the survey of wells has not been undertaken. There should be a commitment from the project proponent to mitigate if it can be shown that there are groundwater levels impacts to those wells due to dewatering as stated in Reference 8. However, this requires the documentation of baseline conditions at these wells. Therefore, it is important that the bore survey is undertaken as part of the collection of baseline data.

4.0 Independent Calculation of Predicted Flux from River

This section provides a “sanity check” of the potential long-term steady state flux from the river as a result of the proposed mine under steady state conditions of maximum drawdown due to dewatering. Along the northern boundary of the planned Mine Pit, the following are expected to be the primary factors that control the magnitude of losses from the river during mine dewatering:

- Distance between closest point of river or saturated river alluvium (point A) to the dewatering system along the northern edge of the pit (point B).
- Maximum head difference between river and dewatering system, which will be driven by the elevation of the base of the mine.
- Transmissivity between Point B and Point A.
- Length of river reach and pit perimeter over which the above applies

Wells 112a and b are reportedly screened in consolidated rock (Reference 5). These wells appear to show a downward gradient in Figure 8-9, which implies there is a downward flux across relatively low permeability materials under baseline conditions.

Late 2011 groundwater levels in the eastern part of the proposed mine pit appear to be approximately 112 m AHD in the south east corner (AQ107C), some 4 km from the river, and approximately 115 m AHD in the north east corner (AQ96/97), some 2 km from the river. At the same time the river, controlled by the Bedford Weir, was at an elevation of approximately 123 m AHD. So, in the NE part of the proposed Mine Pit, the groundwater level is approximately 7 m below river level under baseline conditions. Therefore, there is currently a flux from the river towards the Washpool Project area which is driven by this 7 m head difference. However, it may be a very small flux, depending on the hydraulic properties (see below).

From the E-W cross section (Figure 8-4), the base of the coal within the Washpool Project area is at elevation approximately 80 m AHD. Therefore, the head during dewatering of the coal will be no less than 80 m. Therefore, the maximum head difference between the river and the coal will be no more than around 43m. This is approximately 6 times the current baseline head difference. Therefore, whatever the flux is now from the river, it can be expected that the flux during Washpool dewatering will be no more than approximately 6 times as much during Washpool dewatering.

Assuming there is no pathway through the overburden above the Permian bedrock, the “worst case scenario” in terms of the hydraulic connection would be via the coal measures, as they reportedly have the greatest hydraulic conductivity of the units tested (i.e. up to 0.18 m/day from slug tests). Table 8.1 in Reference 5 shows a combined thickness of the coals of approximately 4 m. The confined flow from a line source to a line sink such as a dewatering system can be estimated using the following formula, which is based on Darcy's Law:

$$Q = xKB(H-h)/L \text{ (Powers, 1992)}$$

Where B = aquifer thickness, x = aquifer width, and (H-h)/L = hydraulic gradient between the line source and the line sink.

For northern boundary during dewatering, assuming average L = 1 km, head difference H-h = 40 m, x = 1.5 km, K = 0.18 m/day (the highest value from the slug tests), and average B = 4 m,

potential leakage from river, $Q = 1500 \times 0.18 \times 4 \times 40/1000 = \text{approximately } 40 \text{ m}^3/\text{day}$, i.e. 0.5 L/s, 0.04 ML/day or 20 ML/yr. (to 1 significant figure).

The above calculation is simplistic compared to the numerical model and does not include the potential seepage through other layers of the Burngrove Formation. However, due to its lower hydraulic conductivity, any leakage through the non-coal Burngrove Formation would be expected to be less than through the coals. Also, the above calculation only considers the flux from the closest reach of the river to the north, with length 1500 m. It does not consider the flux from the west. If saturated coal does not extend to close to the river to the north, the above estimate of flux is likely to be an overestimate.

It is understood from Section 8.6.5.2 that, based on the groundwater model, the predicted net effect of the dewatering could be a loss of 50 ML/yr. from the Mackenzie River. From the above "sanity check" calculation, the maximum leakage from the river of 50 ML/day evaluated using the model is considered likely to be conservative, i.e. more likely to be an overestimate than an underestimate.

5.0 Review and Comments on the IESC Guidelines

This section provides comment on Reference 9, Table 1, in particular in the context of Reference 1, the terms of reference for the Washpool EIS.

It is understood that it is not a requirement of the EIS to meet the guidelines documented in Reference 9. However, the author has been asked to review Reference 9 and provide comment regarding to what extent the EIS complies with this document.

5.1 Purpose of the IESC Guidelines

The purpose of Reference 9 is to document guidelines for both CSG and large coal mining developments "that are likely to have a significant impact on water resources". "Significant impact" is further defined in Reference 9 in several ways, including to:

- Result in substantial change in the quantity, quality or availability of surface or groundwater
- "substantially alter groundwater pressure or water table levels".

As the Washpool Project would locally lower groundwater levels by tens of metres and would locally and temporarily result in substantial changes in the quantity of groundwater, it could be considered likely to have a significant impact under this definition. However, this would also mean that the majority of coal mining projects would fall into this category. This also does not take into account the minimal potential consequences.

5.2 Compliance with the IESC Guidelines

This section highlights the primary areas in which Reference 9 represents a higher level of impact assessment than Reference 1. The most significant of these additional components are as follows:

Assessment of cumulative groundwater impacts

Cumulative impacts are mentioned in Reference 1, in general terms at the start of Section 4. In addition, within the groundwater section, i.e. Section 4.5.2.2, of Reference 1, discussion of cumulative impacts is limited to potential impacts on water quality.

There is the potential for cumulative physical impacts in an area where there are several coal mines within kilometres or tens of kilometres of each other. A true cumulative impact assessment would involve a large scale groundwater model that includes simulation of dewatering at other existing mines in the baseline model calibration and incorporates existing and approved mines in the impact assessment.

Reference 9 explicitly includes the need for assessment of the cumulative impacts of all relevant developments. However, it also notes that this would require input from regulators regarding other existing and proposed projects.

Risk assessment approach to potential impacts

The guidelines in Reference 9 include assessment of the likelihood and consequence of identified groundwater impacts occurring and assessment of the consequential impacts on the water balance and water-related assets. This is not a specific requirement of Reference 1.

Development of a water balance (regional and local)

Reference 9 considers that applying a water balance model is the most appropriate basis for assessing potential changes in water resources. This is not an explicit requirement of Reference 1.

Background data and modelling

Reference 9 provides more detail than Reference 1 regarding the components of the baseline information collated into a CHM. It also explicitly requires numerical groundwater modelling “that enables probabilistic evaluation of potential future scenarios”.

Reference 9 also provides explicit detail regarding multiple requirements of the numerical model, including simulation of the various stages of the proposed development, the time to maximum drawdown, annual dewatering volumes, and potential water level recovery rates. Surprisingly, Reference 9 does not appear to explicitly differentiate between the operational conditions and the post mining steady state recovery situation. However, it does mention that the model should “provide information on the potential water level recovery rates and timeframes for the life of the project and beyond”. It is this author’s expectation that the existing numerical model would have the capability to do this once recalibrated to the new data and based on any modifications to the conceptualisation that result from the new data.

For the most part, the conceptualisation requirements of Reference 1 agree with those of Reference 9 and once the issues with data gaps, clarity and detail are addressed, the background data presented in the EIS would, for the most part, comply with Reference 9. However, Reference 9 would require some additional interpretation including local and

regional water balances as described above, further description of the likely recharge sources and discharge pathways, more detail regarding the quantification of baseline groundwater fluxes (this is effectively the water balance information described above) including baseline surface water/groundwater fluxes. These fluxes can be initially estimated but the numerical model (calibration run) would be the optimum tool for quantifying the components of the groundwater balance.

6.0 Closure

This letter report is provided subject to the attached limitations. If you have any questions or comments regarding this document, or require any additional opinions or interpretations, please contact the undersigned.

Yours sincerely,

sch4p4(6) Personal



Alan Wade
Aquade Groundwater
Services Pty Ltd

Attachments:

Glossary of terms
Additional Hydrogeological References
Limitations
Table 2. Table of Specific Comments in DEHP Assessment Report
c.v. of Alan Wade

Glossary of terms:

Alluvial Deposits. Sediments deposited in a fluvial environment.

Anisotropy condition in which one or more of the hydraulic properties of an aquifer vary according to the direction of flow.

Aquifer. Rock or sediment that is a geological formation, group of formations, or part of a formation which is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.

Aquitard. A unit of low-permeability that can store groundwater and also transmit it slowly.

Bore. A hydraulic structure that facilitates the monitoring of groundwater level, collection of groundwater samples, or the extraction (or injection) of groundwater. Also known as a well.

Borehole an uncased drill hole.

Drawdown. Lowering of hydraulic head.

Electrical Conductivity (EC). The EC of water is a measure of its ability to conduct an electric current. This property is related to the ionic content of the sample, which is in turn a function of the total dissolved (ionisable) solids (TDS) concentration. An estimate of TDS in fresh water can be obtained by multiplying EC by 0.65.

Gradient. Rate of inclination of a slope. The change in elevation with distance in a given direction.

Groundwater. The water held in the pores in the ground below the water table.

Hydraulic Head. The sum of the elevation head and the pressure head at a point in an aquifer. This is typically reported as an elevation above a fixed datum, such as sea level.

Heterogeneous. Condition of having different characteristics in different locations. Non-uniform. (Opposite of **homogeneous**).

Hydraulic conductivity. A coefficient describing the rate at which water can move through a permeable medium. It has units of length per time.

Hydrostratigraphic unit. A formation, part of a formation, or group of formations in which there are similar hydrologic characteristics allowing for grouping into one aquifer or aquitard.

Hydrostratigraphy. The framework of a groundwater flow system described in terms of its hydrostratigraphic units.

Permeability. Property of porous medium relating to its ability to transmit or conduct liquid (usually water) under the influence of a driving force. Where water is the fluid, this is effectively the hydraulic conductivity.

Piezometric or Potentiometric Surface. A surface that represents the level to which water will rise in cased wells. The water table is the potentiometric surface in an unconfined aquifer.

Recharge Area. Location of the replenishment of an aquifer by a natural process such as addition of water at the ground surface, or by an artificial system such as addition through a well

Saturated Zone. Zone in which the rock or soil pores are filled (saturated) with water.

Stratigraphy. Vertical sequence of geological units.

Total Dissolved Solids (TDS). Total dissolved salts comprising dissociated compounds and undissociated compounds, but not suspended material, colloids or dissolved gases.

Transmissivity. The rate at which water is transmitted through a unit width aquifer or aquitard under a unit hydraulic gradient. It is a function of the properties of the water, the porous medium and the thickness of the porous medium.

Unsaturated zone. The zone between the land surface and the water table, in which the rock or soil pores contain both air and water.

Water table. The interface between the saturated zone and the unsaturated zone above it. The surface in an aquifer at which pore water pressure is equal to atmospheric pressure.

Well. A hydraulic structure that facilitates the monitoring of groundwater level, collection of groundwater samples, or the extraction (or injection) of groundwater. Also known as a bore.

Additional References:

Powers, J.P., Construction Dewatering: new methods and applications, second edition, published by John Wiley and Sons, Inc., 492 pp

Table 2. Comments Regarding Issues Raised by the Former DEHP, Washpool Coal Mine Project

Aspect of EIS	Issues and Comments of Reviewers	Aquade Comments
Monitoring wells.	Only one monitoring bore in alluvial sediments and to the west of the area to be mined	True. This is insufficient. Also, all monitoring wells in saturated alluvium should be slug tested. However, it would not be worthwhile installing dry monitoring wells.
Conceptual Model	Conceptual Model is based on limited hydrogeological data	<p>True but there is always a limit to the hydrogeological data. It is important to focus on where additional data would be of greatest benefit.</p> <p>The bedrock highs shown along the northern perimeter of the study area and the western perimeter of the proposed Mine Pit, which result in thin or negligible overburden alluvials in these areas are important restrictions to lateral inflow to a dewatering system and, therefore, leakage from the river or from saturated alluvials below the elevation of, and likely in communication with, the river (e.g. at AQ105). Borehole logs from, and effective screened intervals in, AQ111 and AQ112 are important.</p> <p>The most important monitoring wells were slug tested, i.e. wells AQ111 and AQ112 located near the river and a bore in the coal measures. Therefore, it is this author's perception that, in general, the most relevant information has been prioritised. However, there are some gaps.</p> <p>Another important aspect of the conceptualisation for calibration of the model is the vertical gradient at AQ112 between the river, and each bore. This means that the precise elevations of the groundwater measuring points (rather than the ground surface next to the bore) are important and it is important to also know the precise elevation of the river at the same time.</p>
Conceptual Model	Three components to the hydrostratigraphy rather than two, i.e. separate Cainozoic unconsolidated sediments into Tertiary and Quaternary.	The author concurs. The Quaternary alluvium is likely to be saturated, at least partly, whereas the Tertiary alluvium is likely to be dry, at least above the coal.
Conceptual Model	More detail on hydrostratigraphy, water levels, quality and yields	<p>See above responses</p> <p>The author recommends testing of the water quality of the groundwater in MW112a and b, at least measurements of EC. A low TDS in these monitoring wells would be evidence that recharge of the groundwater is taking place from the river under baseline conditions.</p>
Monitoring wells.	"Sufficient" monitoring wells to assess groundwater	There is a valid argument for several additional monitoring wells. This author recommends prioritising the perimeters around the proposed mine pit rather than the mine pit area itself.

Aspect of EIS	Issues and Comments of Reviewers	Aquade Comments
	characteristics	
Conceptual Model	Gaps in monitoring program due to “small number of existing bores not having been monitored initially”	There is a valid argument for several additional monitoring wells.
Existing Wells in the Area	Identifying all existing groundwater wells on site and neighbouring site	The author concurs. If this has not been undertaken, it should be. Apart from the contribution to the understanding of the hydrogeology over a larger scale than the monitoring network, it will benefit all concerned to have an accurate understanding of the baseline condition at all such wells.
Background Groundwater Quality	Use private bore 111877 near Bedford Weir for background water quality in alluvium	Any bore near Bedford Weir may have been affected by the artificial recharge caused by the Weir itself. The author suggests using Bore AQ106, to the west of Coal Mine Lagoon, for evaluation of background groundwater quality in the Cainozoic sediments.
Hydrographs	Separate hydrographs for the Cainozoic sediments, and the coal measures	There is only one bore in the Cainozoic sediments. As reported from the on-site drilling, the Tertiary alluvium is interpreted to be unsaturated. Therefore, it is unlikely that hydrographs for the Tertiary alluvium would be feasible, unless the alluvium at AQ106 is Tertiary in age.
Hydrographs	Hydrographs “at appropriate scale” for adequate “representation” of trends in different aquifers	The y-axis scales in Figure 8-9 appear reasonable. Possibly these were modified after this comment.
Conceptual Model	More investigation of relationship between the aquifers and the Mackenzie River (comparing water levels)	Reasonable request. See above. Revised cross section showing geology and groundwater levels. The hydrostratigraphy here is what the potential impact of dewatering depends on.
Assessment of Impacts on aquifer and surface water	Assessment of impacts to be revised. Numerical model to be used to assess them.	A numerical model was used. This is an appropriate tool.
Mitigation	Propose mitigation measures for potential dewatering impacts on “effective take of water in Bedford Weir storage” on Mackenzie River	There is a statement on page 8-42 that the estimated increase in river leakage is small in comparison to average and even low flow conditions within the weir. Some discussion of possible mitigation could be included. There is a statement on page 8-42 that the estimated increase in river leakage is small in comparison to the licensing of water extraction from the Mackenzie river. However, the figure for the licensing is not given.
Monitoring	Monitoring at Coal Mine Lagoon and river	Coal Mine Lagoon good idea. The river is already monitored with gauging stations.

Aspect of EIS	Issues and Comments of Reviewers	Aquade Comments
Mitigation	Commitment to mitigate impacts on gw and sw	The author concurs.
Quantify Impacts	Quantify how much water will be drawn from surface water	The numerical model has been used for this. It has predicted that the increase in leakage rate from the river due to dewatering could be up to 50 ML/yr. My independent flux sanity check backs this up. Note: Table G-6 describing aquifer properties used in model appears to have errors. Please check. It is recommended that, when the uncertainties with the stratigraphy is confirmed in key areas by the installation of additional monitoring wells, the model is recalibrated and rerun
Monitoring	"Missing parameters"	Sixth bullet points on page 28. Unclear on which parameters are missing.
Monitoring	Additional Monitoring Points in "Table 12"	Where is Table 12?
Monitoring	At least three monitoring wells in each aquifer (Quaternary alluvium, Tertiary sediments and Permian coal measures)	It is recommended that this is revisited with DEHP after the issues with the existing groundwater levels are resolved. It may not be necessary to install three monitoring wells in the Quaternary alluvium.
Monitoring	Network insufficient to monitor impacts on groundwater and surface water	True. Additional monitoring wells would be required for monitoring during operations.
Conceptual Model	Can the river be connected to the mine pit area via the alluvial sediments during flooding?	Requires a simple comparison of elevations of top of bedrock and maximum flood level. However, more important for a mine operations perspective than from an impacts perspective.
Conditions at Base of Page 29 of Reference 7	GW Monitoring Plan, More monitoring wells between pit and river, landholder survey, 12 months of data before mining, revise model, consideration of mitigation measures for losses from river, outcomes from discussion with SunWater	These conditions are generally justified. However, it is the opinion of this author that gaps in the existing conceptualization can be addressed and the numerical model can be recalibrated with one round of data from new boreholes and wells rather than it being necessary to first collect one full year of baseline data.

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From: Livia Maiorana [lmaiorana@aquilaresources.com.au]
Sent: Thursday, 15 August 2013 9:19 AM
To: BENNETT Jeremy
CC: Taylor, Damien J (SKM)
Subject: Washpool Groundwater Report
Attachments: Aquade Washpool Hydrogeological Review.pdf

Hi Jeremy,

Please find attached the results of Alan Wades Groundwater Review on the Washpool Coal Project.

As discussed at our meeting, we have now included a summary and recommendations section (6).

As indicated in our discussions, from here we would like DEHP to review this report in line with the Assessment Report Comments to get your feedback if the Department agrees with our planned approach to address the remaining hydrogeological concerns.

Please forward this around for review and if we could get your comments back by the end of next week that would be appreciated.

Please give me a call if you have any questions about the report.

Thanks and regards,

Livia Maiorana
Project Development Manager

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Aquade Reference: 2013245-LTR-001

13 August 2013

Damien Taylor
Project Manager – Washpool Coal Mine Project EIS
Sinclair Knight Merz
32 Cordelia Street
PO Box 3848
South Brisbane QLD 4101 Australia

Dear Damien,

Washpool Coal Mine Project Hydrogeological Review

1.0 Introduction and Background

This scope of this document was defined in a letter from Damien Taylor to Alan Wade, on 22 July 2013 and subsequent telephone conversations.

This document provides an independent review of the hydrogeological work undertaken by SKM for the Environmental Impact Statement (EIS) for the Washpool Coal Mine Project (hereafter referred to as the Washpool Project).

It is understood that the intent of the review is to either confirm the findings and/or make recommendations for additional works and detail what those may be and the timing of these works. The scope of work includes review of the references in Table 1. The reference numbers listed in Table 1 are used hereafter to refer to those references.

Table 1. Reference List in Chronological Order

Reference #	Reference	Source	Date
1	Final Terms of Reference Washpool EIS	DERM	July 2010
2	Washpool EIS Chapter 03 i Project Description	SKM	Feb 2012
3	Washpool EIS Chapter 04 i Land Resources	SKM	Feb 2012
4	Washpool EIS Chapter 07 i Surface Water	SKM	Feb 2012
5	Washpool EIS Chapter 08 - Groundwater	SKM	Feb 2012
6	Washpool EIS Appendix G	SKM	Feb 2012
7	Washpool EIS Assessment Report Section 4.8.3	DEHP	May 2012
8	Draft Washpool Environmental Authority Conditions	DERM	July 2012
9	IESC Guidelines for Proposals Relating to the Development of Coal Seam Gas and Large Coal mines where there is a Significant Impact on Water Resources	IESC	Feb 2013

Note: the primary references reviewed are bolded.

The initial version of the EIS was not reviewed by this author. In addition, the groundwater model which was used to evaluate the potential impact of dewatering was not reviewed in

detail by the author. However, Reference 6, which was reviewed, includes an overview of the groundwater model used.

2.0 Author's Expertise

The author has 25 years of experience as a hydrogeologist in Australia, New Zealand, the USA, Canada and China. After having been a Principal Hydrogeologist at two major international consulting firms between 1999 and 2010, the author set up the independent consulting company, Aquade, in 2010. Through this company, the author provides independent advice, analysis, reviews, audits and expert witness statements to a variety of clients in the public and private sectors both in Australia and overseas. The author is currently Chairperson of the International Association of Hydrogeologists in Victoria, Australia

The attached Curriculum Vitae provides a summary of the author's qualifications and experience as well as a list of specific project experience. Specific areas of expertise include scoping and directing large-scale studies which incorporate field investigations and modelling, including environmental impact assessments.

3.0 Review and Comments on the DEHP Assessment Report

This section summarises the main issues raised by DEHP and this reviewer's comments regarding those issues. In addition, Table 2 considers in more detail several specific points made by DEHP, with comments by the author.

3.1 Summary of Issues Identified by DEHP

Reference 7, the DEHP Assessment Report, provides a review by the Queensland Government of Reference 5, the hydrogeology section of the Washpool Project EIS. Reference 7 identifies several issues with Reference 5.

The primary issues, as described by DEHP, concern the Conceptual Hydrogeological Model (CHM), specifically:

- The CHM is based on limited hydrogeological data. DEHP asks for more detail on the hydrostratigraphy, water levels, quality and yields.
- Overburden alluvial sediments should be separated into Tertiary and Quaternary sediments.
- More detail on the hydraulic relationship between the aquifers and the Mackenzie River.
- Insufficient monitoring wells both to the west and the north of the proposed pit area.
- Gaps in the groundwater monitoring program, i.e. in the collection of transient data.
- Lack of background water quality in the alluvium.

In addition, Reference 7 asks for identification of all existing groundwater wells both on site and at neighbouring sites, i.e. a survey of landowner bores.

Reference 7 also asks for proposed mitigation measures for potential dewatering impacts on the Mackenzie River.

Reference 7 includes the statement that the assessment of the potential groundwater impacts in the first version of the EIS was lacking in detail and clarity and the subsequent additional information provided by the proponent in response to requests from the former DERM was not as complete as EHP was seeking.

3.2 Aquade Comments Regarding Conceptualisation

The most important information of relevance to the potential leakage rate from the Mackenzie River to a mine dewatering system is:

1. The stratigraphy between the proposed Mine Pit and the river to the north and between the proposed Mine Pit and the alluvial sediments, Coal Mine Lagoon and river to the west. These are the areas where additional boreholes and monitoring wells would be most useful in minimising uncertainty in the conceptual hydrogeology and, therefore, in estimates of losses from the river.
2. Hydraulic properties of the saturated materials, in particular those areas, particularly the most permeable saturated materials.

In particular, the magnitude of leakage flux from the river towards the dewatering system will likely depend largely on whether the top of bedrock is typically below the water table or not. The conceptualisation is that the bedrock highs to the north and the west of the Mine Pit will restrict the flux to the dewatering system because the water table is within the bedrock to the north and only slightly above the top of the bedrock to the west. Therefore, there would be no relatively high transmissivity pathway from the river through the Cainozoic sediments to the mine dewatering system.

It is understood from Reference 5 and verbal communications between the author and SKM that Borehole AQ112 is located in an area of bedrock outcrop forming the river bank, where the ground surface is above the highest potential level of flooding of the river. Therefore, the water table is within the Permian bedrock at this location. Confirmation that the water table level is within the Permian bedrock between the proposed Mine Pit and the river to the north is an important part of the conceptualisation.

There are some discrepancies in groundwater elevations as presented in different tables and figures in Reference 5, which may have contributed to the lack of clarity highlighted by DEHP. The author has been informed by SKM that this is likely to be due to inaccurate ground surface elevations from a GPS instrument, which were used in Table 8-4 of Reference 5 and in several subsequent figures. It is understood that the elevations shown in Figure 8-9 of Reference 5, which compares groundwater levels and river levels, are derived from the digital elevation model rather than from a GPS instrument and are, therefore, considered more likely to be correct. Bedrock groundwater levels which are illustrated in Figure 8-9 of Reference 5 support the conceptualisation in the text that the alluvium above the coal within the proposed Mine Pit area is unsaturated.

Additional boreholes and monitoring wells would help to clarify the hydrostratigraphy. The drilling method for any new monitoring wells should be a dry method such that the level of the water table can be established during drilling. For any borehole drilled through Tertiary alluvium which proves to be dry through those sediments, it would be preferable to drill further until the water table is encountered in the bedrock and complete a bedrock monitoring well rather than to complete a dry well in the overburden.

When Reference 5 is revised, Table 4 and the subsequent figures which present data from this table should also be revised. In particular, the conceptualisation would likely be further clarified by revising the north-south cross section to a line between the AW111/112 area and the proposed Mine Pit, showing actual borehole logs, screened intervals and groundwater elevations in monitoring wells as well as interpreted stratigraphy between the boreholes. The author anticipates this will also help to clarify the conceptualisation of surface water-groundwater interaction in this area.

The author recommends that, if the datum elevations of the existing monitoring wells have not been accurately surveyed, they should be resurveyed at the time that any new wells are surveyed, as precision in the hydraulic heads and gradients translates to greater certainty in the CHM and, in turn, in the numerical model used to predict impacts. In particular, the accurate evaluation of the vertical head difference at nested wells such as AQ112 is strongly sensitive to this datum accuracy.

In summary, this author agrees with the most important aspects of the CHM as presented in Reference 5 but also agrees that there are data gaps and the existing data could be presented with greater clarity and in greater detail. Additional monitoring wells are recommended to the north and west of the proposed pit area, as requested by DEHP. If the Cainozoic alluvials are found to be saturated at any location, a monitoring well should be completed in those sediments at that location. Additional drilling within the area of the proposed Mine Pit is not recommended. Boreholes drilled to the top of bedrock within the area of the proposed Mine Pit are likely to be dry.

It is recommended that the drilling and the installation of new wells be documented by a hydrogeologist, responsible for logging the borehole and documenting the details of the well construction and development. Any new wells should also be slug tested. AQ105 should also be slug tested as it is the only bore in the alluvium.

In the opinion of this author, it is not necessary to have a comprehensive transient database, i.e. hydrographs with multiple points in time, in order to interpret baseline conditions. If it were required to perform a transient calibration to meet the requirements of the EIS, it would be justifiable. However, calibration to transient conditions is not required and the level of effort involved in doing so would not be justified. The typical baseline conditions, i.e. during periods of relatively low flow in the river, are more important than the conditions during high river stages from an environmental impact perspective. However, from a dewatering feasibility perspective, it would be advisable for the proponent to have an understanding of the maximum groundwater levels that are likely during a wet season with high precipitation and river levels.

There is a requirement in Reference 8 for the groundwater monitoring program to have at least twelve sampling events to determine background groundwater quality. The author does not consider this requirement to be justifiable as baseline groundwater chemistry is unlikely to change measurably with time. Updating the conceptual model after the new wells are installed and recalibrating the numerical model to one round of late dry season water levels would be considerably more cost effective.

3.3 Aquade Comments Regarding Mitigation and Bore Survey

In order to put the potential impact on the Mackenzie River in perspective, it would be helpful to compare the predicted leakage rate from the river due to dewatering with the river low flow and average flow, with the licensed amount of annual water extraction (from the weir pond if known) and with the expected rate of evaporation from the pond of Bedford Weir during a typical dry season.

Notwithstanding the expectation of minimal impact in terms of river flow, there should be a commitment from the project proponent to mitigate should there be significant impacts to the river as a result of dewatering. The commitment in the EIS to continuously monitor groundwater conditions and to update the groundwater model during dewatering is important. The response of the system during long-term pumping is the optimum method to minimize uncertainty in quantification of the leakage rate. In this way, Washpool Coal will be able to use the model to evaluate and demonstrate what the flux is from the river during dewatering.

The off-site bores/wells shown in Reference 5 are likely to be sustained by the river. However, there may be other wells that are currently unknown because the survey of wells has not been undertaken. There should be a commitment from the project proponent to mitigate if it can be shown that there are groundwater levels impacts to those wells due to dewatering as stated in Reference 8. However, this requires the documentation of baseline conditions at these wells. Therefore, it is important that the bore survey is undertaken as part of the collection of baseline data.

4.0 Independent Calculation of Predicted Flux from River

This section provides a sanity check of the potential long-term steady state flux from the river as a result of the proposed mine under steady state conditions of maximum drawdown due to dewatering. Along the northern boundary of the planned Mine Pit, the following are expected to be the primary factors that control the magnitude of losses from the river during mine dewatering:

- Distance between closest point of river or saturated river alluvium (point A) to the dewatering system along the northern edge of the pit (point B).
- Maximum head difference between river and dewatering system, which will be driven by the elevation of the base of the mine.
- Transmissivity between Point B and Point A.
- Length of river reach and pit perimeter over which the above applies

Wells 112a and b are reportedly screened in consolidated rock (Reference 5). These wells appear to show a downward gradient in Figure 8-9, which implies there is a downward flux across relatively low permeability materials under baseline conditions.

Late 2011 groundwater levels in the eastern part of the proposed mine pit appear to be approximately 112 m AHD in the south east corner (AQ107C), some 4 km from the river, and approximately 115 m AHD in the north east corner (AQ96/97), some 2 km from the river. At the same time the river, controlled by the Bedford Weir, was at an elevation of approximately 123 m AHD. So, in the NE part of the proposed Mine Pit, the groundwater level is approximately 7 m below river level under baseline conditions. Therefore, there is currently a flux from the river towards the Washpool Project area which is driven by this 7 m head difference. However, it may be a very small flux, depending on the hydraulic properties (see below).

From the E-W cross section (Figure 8-4, Reference 5), the base of the coal within the Washpool Project area is at elevation approximately 80 m AHD. Therefore, the head during dewatering of the coal will be no less than 80 m. Therefore, the maximum head difference between the river and the coal will be no more than around 43m. This is approximately six times the current baseline head difference. Therefore, whatever the flux is now from the river, it can be expected that the flux during Washpool dewatering will be no more than approximately six times as much during Washpool dewatering.

Assuming there is no pathway through the overburden above the Permian bedrock, the worst case scenario in terms of the hydraulic connection would be via the coal measures, as they reportedly have the greatest hydraulic conductivity of the units tested (i.e. up to 0.18 m/day from slug tests). Table 8.1 in Reference 5 shows a combined thickness of the coals of approximately 4 m. The confined flow from a line source to a line sink such as a dewatering system can be estimated using the following formula, which is based on Darcy's Law:

$$Q = xKB(H-h)/L \text{ (Powers, 1992)}$$

Where B = aquifer thickness, x = aquifer width, and (H-h)/L = hydraulic gradient between the line source and the line sink.

For the northern boundary during dewatering, assuming average L = 1 km, head difference H-h = 40 m, x = 1.5 km, K = 0.18 m/day (the highest value from the slug tests), and average B = 4 m,

potential leakage from river in this area, $Q = 1500 \times 0.18 \times 4 \times 40/1000 =$ approximately 40 m³/day, i.e. 0.5 L/s, 0.04 ML/day or 20 ML/yr. (to 1 significant figure).

The above calculation is simplistic compared to the numerical model and does not include the potential seepage through other layers of the Burngrove Formation. However, due to its lower hydraulic conductivity, any leakage through the non-coal Burngrove Formation would be expected to be less than through the coals. Also, the above calculation only considers the flux from the closest reach of the river to the north, with length 1500 m. It does not consider the flux from the west. If saturated coal does not extend to close to the river to the north, the above estimate of flux from this direction is likely to be an overestimate.

It is understood from Section 8.6.5.2 that, based on the groundwater model, the predicted net effect of the dewatering could be a loss of 50 ML/yr. from the Mackenzie River. From the above sanity check calculation, the figure of 50 ML/day evaluated using the model is considered likely to be conservative, i.e. more likely to be an overestimate than an underestimate.

5.0 Review and Comments on the IESC Guidelines

This section provides comment on Reference 9, Table 1, in particular in the context of Reference 1, the terms of reference for the Washpool EIS.

It is understood that it is not a requirement of the EIS to meet the guidelines documented in Reference 9. However, the author has been asked to review Reference 9 and provide comment regarding to what extent the EIS complies with this document.

5.1 Purpose of the IESC Guidelines

The purpose of Reference 9 is to document guidelines for both CSG and large coal mining developments that are likely to have a significant impact on water resources. Significant impact is further defined in Reference 9 in several ways, including to:

- Result in substantial change in the quantity, quality or availability of surface or groundwater
- substantially alter groundwater pressure or water table levels

As the Washpool Project would locally lower groundwater levels by tens of metres and would locally and temporarily result in substantial changes in the quantity of groundwater, it could be considered likely to have a significant impact under this definition. However, this would also mean that the majority of coal mining projects would fall into this category. This also does not take into account the minimal potential consequences.

5.2 Compliance with the IESC Guidelines

This section highlights the primary areas in which Reference 9 represents a higher level of impact assessment than Reference 1. The most significant of these additional components are as follows:

Assessment of cumulative groundwater impacts

Cumulative impacts are mentioned in Reference 1, in general terms at the start of Section 4. In addition, within the groundwater section, i.e. Section 4.5.2.2, of Reference 1, discussion of cumulative impacts is limited to potential impacts on water quality.

There is the potential for cumulative physical impacts in an area where there are several coal mines within kilometres or tens of kilometres of each other. A true cumulative impact assessment would involve a large scale groundwater model that includes simulation of dewatering at other existing mines in the baseline model calibration and incorporates existing and approved mines in the impact assessment.

Reference 9 explicitly includes the need for assessment of the cumulative impacts of all relevant developments. However, it also notes that this would require input from regulators regarding other existing and proposed projects.

Risk assessment approach to potential impacts

The guidelines in Reference 9 include assessment of the likelihood and consequence of identified groundwater impacts occurring and assessment of the consequential impacts on the water balance and water-related assets. This is not a specific requirement of Reference 1.

Development of a water balance (regional and local)

Reference 9 considers that applying a water balance model is the most appropriate basis for assessing potential changes in water resources. This is not an explicit requirement of Reference 1.

Background data and modelling

Reference 9 provides more detail than Reference 1 regarding the components of the baseline information collated into a CHM. It also explicitly requires numerical groundwater modelling that enables probabilistic evaluation of potential future scenarios.

Reference 9 also provides explicit detail regarding multiple requirements of the numerical model, including simulation of the various stages of the proposed development, the time to maximum drawdown, annual dewatering volumes, and potential water level recovery rates. Surprisingly, Reference 9 does not appear to explicitly differentiate between the operational conditions and the post mining steady state recovery situation. However, it does mention that the model should provide information on the potential water level recovery rates and timeframes for the life of the project and beyond. It is this author's expectation that the existing numerical model would have the capability to do this once recalibrated to the new data and based on any modifications to the conceptualisation that result from the new data.

For the most part, the conceptualisation requirements of Reference 1 agree with those of Reference 9 and once the issues with data gaps, clarity and detail are addressed, the background data presented in the EIS would, for the most part, comply with Reference 9. However, Reference 9 would require some additional interpretation including local and regional water balances as described above, further description of the likely recharge sources and discharge pathways, more detail regarding the quantification of baseline

groundwater fluxes (this is effectively the water balance information described above) including baseline surface water/groundwater fluxes. These fluxes can be initially estimated but the numerical model (calibration run) would be the optimum tool for quantifying the components of the groundwater balance.

6.0 Summary and Recommendations

This document presents an independent review of hydrogeological work undertaken for the Washpool Environmental Impact Statement (EIS) and associated comments from DEHP in Section 4.8.3 of the EIS Assessment Report. The review was undertaken between 24 July and 13 August 2013.

The former DERM commented that the hydrogeological interpretations in the EIS were based on limited data and an insufficient number of monitoring wells. DEHP stated that the first version of the EIS was lacking in detail and clarity and that additional information provided in response to requests was not as complete as DEHP was seeking. The most significant potential impact of mine dewatering is induced leakage from the Mackenzie River. Therefore, DEHP is particularly concerned about uncertainty in the conceptual hydrogeology between the proposed Mine Pit and the River.

6.1 Conceptualisation and Impact Prediction

This author agrees with the most important aspects of the conceptualisation in the EIS, including the interpretation of limited hydraulic connection between the project and the river, and agrees with the prediction that mining operations are expected to pose a low risk of impacts to surface water bodies, to ecosystems associated with them and to nearby groundwater users. However, the author also agrees with DEHP that there are data gaps and that the existing data could be presented with greater clarity and detail. It is in the interests of both the project proponent and the regulator that these issues are addressed.

This author recommends additional drilling and monitoring-well installation with detailed logging of the boreholes and a clearer explanation of the conceptual hydrogeology using the new and previously existing information. Four additional monitoring wells are recommended, two to the north and two to the west of the proposed Mine Pit. It is recommended that they be constructed, developed and tested as follows:

- A dry drilling method should be employed.
- Drilling, well installation and development should be supervised by a hydrogeologist who is responsible for logging the borehole, selecting the screened interval to be monitored and documenting the well construction details.
- If saturated alluvium is encountered during drilling (which is more likely to the west than to the north of the proposed Mine Pit), the monitoring well should be screened in the alluvium.
- If the alluvium is unsaturated, drilling should continue into the bedrock and the monitoring well should be screened in saturated bedrock.
- All new monitoring wells should be slug tested. Existing well AQ105, screened in the alluvium to the west of the proposed Mine Pit, should also be slug tested. The slug tests should be undertaken and analysed by a hydrogeologist.

It is recommended that the EIS be updated to incorporate the new information and to correct for inconsistencies. The author considers the updating of the N-S and E-W cross sections depicting both the bedrock surface and the water table surface to be important in clarifying the conceptual hydrogeology. Following clarification of the baseline hydrogeology, the numerical model should be recalibrated. Where vertical gradients between

hydrostratigraphic units exist, open boreholes across those units can provide imprecise groundwater levels and obscure those vertical gradients. Therefore, this author recommends that only data from monitoring wells with discrete screened intervals be used in subsequent model calibration, rather than data from open boreholes.

This author does not consider temporal issues with the baseline data that have been identified by DEHP to be significant in comparison to spatial issues, and does not concur that it is necessary to collect a full year of groundwater levels or groundwater quality data prior to the initial box cut excavation.

Commitment to Monitoring and Mitigation

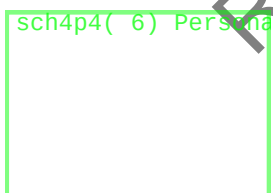
Although significant impacts to the river or to groundwater users are not expected, there should be a commitment to mitigate should such impacts take place as a result of dewatering. It is important that a survey is undertaken of unlicensed, as well as licensed, bores such that baseline groundwater conditions at existing bores are known to the extent practical.

Notwithstanding the predicted lack of significant impacts, there should be a commitment from the project proponent to mitigate should there be significant impacts to the river as a result of dewatering. The commitment in the EIS to continuously monitor groundwater conditions and to update the groundwater model during dewatering is important. The response of the system during long-term pumping is the optimum method to minimize uncertainty in quantification of the leakage rate. In this way, Washpool Coal will be able to use the model to evaluate and demonstrate what the flux is from the river during dewatering.

7.0 Closure

This letter report is provided subject to the attached limitations. If you have any questions or comments regarding this document, or require any additional opinions or interpretations, please contact the undersigned.

Yours sincerely,

sch4p4(6) Personal


Alan Wade
 Aquade Groundwater
 Services Pty Ltd

Attachments:

- Glossary of terms
- Additional References
- Aquade General Limitations
- Table 2. Table of Specific Comments in DEHP Assessment Report
 c.v. of Alan Wade

Glossary of terms:

Alluvial Deposits. Sediments deposited in a fluvial environment.

Anisotropy condition in which one or more of the hydraulic properties of an aquifer vary according to the direction of flow.

Aquifer. Rock or sediment that is a geological formation, group of formations, or part of a formation which is saturated and sufficiently permeable to transmit economic quantities of water to wells and springs.

Aquitard. A unit of low-permeability that can store groundwater and also transmit it slowly.

Bore. A hydraulic structure that facilitates the monitoring of groundwater level, collection of groundwater samples, or the extraction (or injection) of groundwater. Also known as a well.

Borehole an uncased drill hole.

Drawdown. Lowering of hydraulic head.

Electrical Conductivity (EC). The EC of water is a measure of its ability to conduct an electric current. This property is related to the ionic content of the sample, which is in turn a function of the total dissolved (ionisable) solids (TDS) concentration. An estimate of TDS in fresh water can be obtained by multiplying EC by 0.65.

Gradient. Rate of inclination of a slope. The change in elevation with distance in a given direction.

Groundwater. The water held in the pores in the ground below the water table.

Hydraulic Head. The sum of the elevation head and the pressure head at a point in an aquifer. This is typically reported as an elevation above a fixed datum, such as sea level.

Heterogeneous. Condition of having different characteristics in different locations. Non-uniform. (Opposite of **homogeneous**).

Hydraulic conductivity. A coefficient describing the rate at which water can move through a permeable medium. It has units of length per time.

Hydrostratigraphic unit. A formation, part of a formation, or group of formations in which there are similar hydrologic characteristics allowing for grouping into one aquifer or aquitard.

Hydrostratigraphy. The framework of a groundwater flow system described in terms of its hydrostratigraphic units.

Permeability. Property of porous medium relating to its ability to transmit or conduct liquid (usually water) under the influence of a driving force. Where water is the fluid, this is effectively the hydraulic conductivity.

Piezometric or Potentiometric Surface. A surface that represents the level to which water will rise in cased wells. The water table is the potentiometric surface in an unconfined aquifer.



Recharge Area. Location of the replenishment of an aquifer by a natural process such as addition of water at the ground surface, or by an artificial system such as addition through a well

Saturated Zone. Zone in which the rock or soil pores are filled (saturated) with water.

Stratigraphy. Vertical sequence of geological units.

Total Dissolved Solids (TDS). Total dissolved salts comprising dissociated compounds and undissociated compounds, but not suspended material, colloids or dissolved gases.

Transmissivity. The rate at which water is transmitted through a unit width aquifer or aquitard under a unit hydraulic gradient. It is a function of the properties of the water, the porous medium and the thickness of the porous medium.

Unsaturated zone. The zone between the land surface and the water table, in which the rock or soil pores contain both air and water.

Water table. The interface between the saturated zone and the unsaturated zone above it. The surface in an aquifer at which pore water pressure is equal to atmospheric pressure.

Well. A hydraulic structure that facilitates the monitoring of groundwater level, collection of groundwater samples, or the extraction (or injection) of groundwater. Also known as a bore.

Additional References:

Powers, J.P., Construction Dewatering: new methods and applications, second edition, published by John Wiley and Sons, Inc., 492 pp

AQUADE GENERAL LIMITATIONS

Scope of Services

This document (the report) has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and Aquade (scope of services). In some circumstances, the scope of services may have been limited by a range of factors such as time or budget constraints.

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In preparing the report, Aquade has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the report (the data). Except as otherwise stated in the report, Aquade has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (conclusions) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Aquade will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to Aquade.

Interpretations and Conclusions

In accordance with the scope of services, Aquade has relied upon the data provided in the preparation of the report. The nature and extent of monitoring and/or testing conducted and reviewed is described in the report.

On all sites, varying degrees of non-uniformity of the vertical and horizontal soil, rock and/or groundwater conditions are encountered. Hence no monitoring can eliminate the possibility that the data obtained are not totally representative of ground and/or groundwater conditions encountered. The interpretations and conclusions herein are based upon the available data and are therefore merely indicative of the conditions from the available data at the time of preparing the report. Also, it should be recognised that the data reviewed are from a limited time period and that site conditions can change with time.

Within the limitations imposed by the scope of services, the analysis performed and the preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable hydrogeological consultants under similar circumstances. No other warranty, expressed or implied, is made.

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Any opinion of construction costs, including bore/well installation, refurbishment and decommissioning, prepared by Aquade (whether as part of the Services or otherwise) and provided to the Client is supplied for the general guidance of the Client only and Aquade provides no guarantee as to the accuracy or suitability of any such opinion for any purpose.

Aquade will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.

Table 2. Comments Regarding Issues Raised by the Former DEHP, Washpool Coal Mine Project

Aspect of EIS	Issues and Comments of Reviewers	Aquade Comments
Monitoring wells.	Only one monitoring bore in alluvial sediments and to the west of the area to be mined	True. This is insufficient. Also, all monitoring wells in saturated alluvium should be slug tested. However, it would not be worthwhile installing dry monitoring wells.
Conceptual Model	Conceptual Model is based on limited hydrogeological data	<p>True but there is always a limit to the hydrogeological data. It is important to focus on where additional data would be of greatest benefit.</p> <p>The bedrock highs shown along the northern perimeter of the study area and the western perimeter of the proposed Mine Pit, which result in thin or negligible overburden alluvials in these areas are important restrictions to lateral inflow to a dewatering system and, therefore, leakage from the river or from saturated alluvials below the elevation of, and likely in communication with, the river (e.g. at AQ105). Borehole logs from, and effective screened intervals in, AQ111 and AQ112 are important.</p> <p>The most important monitoring wells were slug tested, i.e. wells AQ111 and AQ112 located near the river and a bore in the coal measures. Therefore, it is this author's perception that, in general, the most relevant information has been prioritised. However, there are some gaps.</p> <p>Another important aspect of the conceptualisation for calibration of the model is the vertical gradient at AQ112 between the river, and each bore. This means that the precise elevations of the groundwater measuring points (rather than the ground surface next to the bore) are important and it is important to also know the precise elevation of the river at the same time.</p>
Conceptual Model	Three components to the hydrostratigraphy rather than two, i.e. separate Cainozoic unconsolidated sediments into Tertiary and Quaternary.	The author concurs. The Quaternary alluvium is likely to be saturated, at least partly, whereas the Tertiary alluvium is likely to be dry, at least above the coal.
Conceptual Model	More detail on hydrostratigraphy, water levels, quality and yields	<p>See above responses</p> <p>The author recommends testing of the water quality of the groundwater in MW112a and b, at least measurements of EC. A low TDS in these monitoring wells would be evidence that recharge of the groundwater is taking place from the river under baseline conditions.</p>
Monitoring wells.	Insufficient monitoring wells to assess groundwater	There is a valid argument for several additional monitoring wells. This author recommends prioritising the perimeters around the proposed mine pit rather than the mine pit area itself.

Aspect of EIS	Issues and Comments of Reviewers	Aquade Comments
	characteristics	
Conceptual Model	Gaps in monitoring program due to small number of existing bores not having been monitored initially	There is a valid argument for several additional monitoring wells.
Existing Wells in the Area	Identifying all existing groundwater wells on site and neighbouring site	The author concurs. If this has not been undertaken, it should be. Apart from the contribution to the understanding of the hydrogeology over a larger scale than the monitoring network, it will benefit all concerned to have an accurate understanding of the baseline condition at all such wells.
Background Groundwater Quality	Use private bore 111877 near Bedford Weir for background water quality in alluvium	Any bore near Bedford Weir may have been affected by the artificial recharge caused by the Weir itself. The author suggests using Bore AQ106, to the west of Coal Mine Lagoon, for evaluation of background groundwater quality in the Cainozoic sediments.
Hydrographs	Separate hydrographs for the Cainozoic sediments, and the coal measures	There is only one bore in the Cainozoic sediments. As reported from the on-site drilling, the Tertiary alluvium is interpreted to be unsaturated. Therefore, it is unlikely that hydrographs for the Tertiary alluvium would be feasible, unless the alluvium at AQ106 is Tertiary in age.
Hydrographs	Hydrographs at appropriate scale for adequate representation of trends in different aquifers	The y-axis scales in Figure 8-9 appear reasonable. Possibly these were modified after this comment.
Conceptual Model	More investigation of relationship between the aquifers and the Mackenzie River (comparing water levels)	Reasonable request. See above. Revised cross section showing geology and groundwater levels. The hydrostratigraphy here is what the potential impact of dewatering depends on.
Assessment of Impacts on aquifer and surface water	Assessment of impacts to be revised. Numerical model to be used to assess them.	A numerical model was used. This is an appropriate tool.
Mitigation	Propose mitigation measures for potential dewatering impacts on effective take of water in Bedford Weir storage on Mackenzie River	There is a statement on page 8-42 that the estimated increase in river leakage is small in comparison to average and even low flow conditions within the weir. Some discussion of possible mitigation could be included. There is a statement on page 8-42 that the estimated increase in river leakage is small in comparison to the licensing of water extraction from the Mackenzie river. However, the figure for the licensing is not given.
Monitoring	Monitoring at Coal Mine Lagoon and river	Coal Mine Lagoon good idea. The river is already monitored with gauging stations.

Aspect of EIS	Issues and Comments of Reviewers	Aquade Comments
Mitigation	Commitment to mitigate impacts on groundwater and surface water	The author concurs.
Quantify Impacts	Quantify how much water will be drawn from surface water	The numerical model has been used for this. It has predicted that the increase in leakage rate from the river due to dewatering could be up to 50 ML/yr. My independent flux sanity check backs this up. Note: Table G-6 describing aquifer properties used in model appears to have errors. Please check. It is recommended that, when the uncertainties with the stratigraphy is confirmed in key areas by the installation of additional monitoring wells, the model is recalibrated and rerun
Monitoring	Missing parameters	Sixth bullet points on page 28. Unclear on which parameters are missing.
Monitoring	Additional Monitoring Points in Table 12	Where is Table 12?
Monitoring	At least three monitoring wells in each aquifer (Quaternary alluvium, Tertiary sediments and Permian coal measures)	It is recommended that this is revisited with DEHP after the issues with the existing groundwater levels are resolved. It may not be necessary to install three monitoring wells in the Quaternary alluvium.
Monitoring	Network insufficient to monitor impacts on groundwater and surface water	True. Additional monitoring wells would be required for monitoring during operations.
Conceptual Model	Can the river be connected to the mine pit area via the alluvial sediments during flooding?	Requires a simple comparison of elevations of top of bedrock and maximum flood level. However, more important for a mine operations perspective than from an impacts perspective.
Conditions at Base of Page 29 of Reference 7	Groundwater Monitoring Plan, More monitoring wells between pit and river, landholder survey, 12 months of data before mining, revise model, consideration of mitigation measures for losses from river, outcomes from discussion with SunWater	These conditions are generally justified. However, it is the opinion of this author that gaps in the existing conceptualization can be addressed and the numerical model can be recalibrated with one round of data from new boreholes and wells rather than it being necessary to first collect one full year of baseline data.



From: BENNETT Jeremy [Jeremy.Bennett@ehp.qld.gov.au]

Sent: Thursday, 17 July 2014 1:29 PM

To: COBBAN Thomas

Subject: Washpool

Attachments: Washpool Groundwater Report; RE: Washpool Coal Project - Meeting Adenda - 12:30; Washpool Coal Project - Meeting Adenda - 12:30

Hi Thomas

These are responses from Washpool prior to Ashley Bleakley comments on the Groundwater Report

Cheers

Jeremy

RTI DL RELEASE - EHP



From: WRNB System Administrator [water.workrequests@derm.qld.gov.au]
Sent: Thursday, 17 July 2014 6:03 PM
To: CLARKE Liz
CC: CAGNEY Justin
Subject: WRNB ID 1072 - New Water Work Request Created : EMP Review - Washpool Coal Pty Ltd - Washpool Coal Mine Project

Follow Up Flag: Follow up
Flag Status: Flagged

A new work request has been submitted to the Work Request Notice Board.

Service Group: Water (WAS)
Request Task: EMP Review
Proponent / Company: Washpool Coal Pty Ltd
Facility Name: Washpool Coal Mine Project
Facility Location: MLA80164
Project File Details: Project ref. 342833
Date of Request: 17/07/2014 12:00:00 AM
Due Date of Request: 1/08/2014 12:00:00 AM
Urgency: Normal
Client Region: Central Region
Category: Mining

To view more information about this work request visit: [More Info](#)
To view the responsible officers for this work request visit: [Responsible Officers](#)
To view a list of recent work requests please visit the [Work Request Notice Board](#)

You have received this email because you are either the requesting or managing officer.

Request Summary			
Service Group	Water (WAS)		
Status	New	Hours Worked	0
Request Task	EMP Review	Proponent / Company	Washpool Coal Pty Ltd
Facility Name	Washpool Coal Mine Project	Facility Location	MLA80164
Project File Details	Project ref. 342833	Date of Request	17/07/2014 12:00:00 AM
Due Date of Request	1/08/2014 12:00:00 AM	Urgency	Normal
Client Region	Central Region	Category	Mining

Requesting Officer			
First Name	Liz	Last Name	Clarke
Phone	4987 9386	Office	Emerald
Region	Central	Position	Team Leader
Email	Liz.Clarke@ehp.qld.gov.au		

Manager			
Manager First Name	Justin	Manager Last Name	Cagney
Manager Phone	4987 9303	Manager Position	A/Manager - ES Mining



Manager Email

Justin.Cagney@ehp.qld.gov.au

Request Details

It is requested that AERDS please review the revised Environmental Management Plan (EM Plan) for the Washpool Coal Mine Project. A number of recommendations were provided in the EIS Assessment Report (May 2012) in regards to surface water, particularly concerning the inadequate information associated with the proposed mine water release scenarios (within the Fitzroy Basin) and the REMP.

EHP is concerned that all matters may not have been addressed, as this is the case for the EM Plan groundwater review that has occurred to date.

Applicable surface water information and recommendations is in the following pages of the EIS Assessment Report: 20-24, 48, 50 - 55.

As the EM Plan Assessment Report is due mid August 2014, it is requested that the advice please be provided at the beginning of August 2014 to allow EHP to consider all information (including any client liaison) in our case to accept or reject the EM Plan.

Relevant Documents

The relevant documents have been attached. Please request any additional documentation that may be required.

EHP is happy to meet with DSITIA via teleconference to discuss any issues.

Justification

To ensure that all matters raised in the EIS Assessment Report have been appropriately addressed by the proponent to ensure ecosystem health and riverine protection, in line with the EPP Water and ANZECC Guidelines.

Other

Budget Availability

Previous Contacts

Attachments

From: Livia Maiorana [lmaiorana@aquilaresources.com.au]
Sent: Friday, 18 July 2014 11:53 AM
To: COBBAN Thomas
CC: CLARKE Liz
Subject: Groundwater Information Request
Attachments: Existing_AQ_Logs.xlsx; SKM gint_logs3.pdf; SKM Logs_56_40R_27_185.xlsx

Hi Thomas,

A summary of the groundwater bores is presented in Section 8.4 of the revised Groundwater Chapter (8) as follows:

8.4.3.1 MONITORING NETWORK ESTABLISHMENT

A total of nine groundwater bores were installed in the Project area to assist in assessing potential impacts, risks and constraints to groundwater associated with the Project. An additional four monitoring wells were installed in September 2013 on the Project area. The 13 groundwater bores are presented in Figure 8-8 with details provided in Table 8-4.

TABLE 8 4 / GROUNDWATER MONITORING BORES

GROUNDWATER REFERENCE NUMBER	EASTING	NORTHING	SCREEN DEPTH	SCREENED LITHOLOGY
sch4p4(7)(1)(c) Business/commercial/professional/financial affairs				
RTI DL RELEASE - EHP				

To provide more detail around each of these bores I've have attached the full logs from the additional four bores that we installed as well as the existing Aquila logs.

Unfortunately the cross reference in the table should have been Appendix B, rather than Appendix C.

Hope this addresses your queries, please let me know if they need any additional information.

Thanks and regards,

Livia Maiorana
Project Development Manager

Level 18, 10 Eagle Street, Brisbane, QLD 4000, Australia

Office: (61) 7 3229 5630

Mobile: (61) Sch4n47

E: hmaiorana@aquilaresources.com.au

Web: www.aquilaresources.com.au

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From: COBBAN Thomas [<mailto:Thomas.Cobban@ehp.qld.gov.au>]

Sent: Thursday, 17 July 2014 1:18 PM

To: Livia Maiorana

Subject: RE: Registered Address and Postal Address Details

Hi Livia,

Further to my below request for the electronic version of the revised EM Plan, can you please forward all groundwater bore logs. It is stated in the EM Plan that bore logs are provided, however I cannot find them in Appendix C or Section 8.4 as stated on pages 19-38 and 8-1 respectively.

Regards,

Thomas Cobban

Graduate Environmental Officer | BScBiol/Geo, MEnvMan, MEIANZ

Environmental Services and Regulation - Mining | Central Region

Department of Environment and Heritage Protection

99 Hospital Road Emerald QLD 4720

PO Box 3028

Tel: (07) 4987 9308

Email: Thomas.Cobban@ehp.qld.gov.au

Web: www.ehp.qld.gov.au

EHP symbol

From: COBBAN Thomas

Sent: Thursday, 17 July 2014 12:59 PM

To: 'Livia Maiorana'

Subject: RE: Registered Address and Postal Address Details

Hi Livia,

My apologies for the typo error, the 3 July 2014 is correct and yes the 13 August 2014 will be the statutory deadline.

Can I please request you send through the electronic version of the revised EM Plan? I am in the process of reviewing the groundwater component of the EM Plan and will require the input of our groundwater officer, who is located in another office and I will need to pass on via email. Can you please respond as soon as practicable in regards to this request.

My understanding is after the EM Plan assessment period is over, five days is allowed for the decision and five days for the

Draft EA to be issued.

I hope this answers all your questions.

Regards,

Thomas Cobban

Graduate Environmental Officer | BScBiol/Geo, MEnvMan, MEIANZ
Environmental Services and Regulation - Mining | Central Region
Department of Environment and Heritage Protection
99 Hospital Road Emerald QLD 4720
PO Box 3028
Tel: (07) 4987 9308
Email: Thomas.Cobban@ehp.qld.gov.au
Web: www.ehp.qld.gov.au

EHP symbol

From: Livia Maiorana [<mailto:lmajorana@aquilaresources.com.au>]
Sent: Thursday, 17 July 2014 11:22 AM
To: COBBAN Thomas
Subject: RE: Registered Address and Postal Address Details

Hi Thomas.

Just checking in to see how the review is going and see if you have any questions or query's on the revised EM Plan appreciating that you have had to catch up on the history of the Project. If you need to book in a telecom to discuss any matter, please just let me know.

In regards to the dates you provided below, I can only assume the date of *June* 3 is a typo which should have read July 3? If that is the case, I have calculated August 13 to be the date the assessment of the Revised EM Plan should be completed and feedback provided. Can you please confirm if this understanding is correct.

Additionally, can you please also confirm that further to that date, subject to the approval of the EM Plan, then there will be 10 business days to issue the Draft EA.

We are just trying to put together all our timeframes at the moment and would like to confirm this.

Thanks and regards,

Livia Maiorana

Project Development Manager

Aquila Resources Limited

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From: COBBAN Thomas [<mailto:Thomas.Cobban@ehp.qld.gov.au>]
Sent: Wednesday, 9 July 2014 10:22 AM
To: Livia Maiorana
Subject: RE: Registered Address and Postal Address Details

Hi Livia,

Thanks for the details.

We received the EM Plan on the 2 July 2014 so the assessment report statutory timeframe of 30 business days began on the 3 June 2014. I had to do some catching up on the history of the project as well as where the project sat within the relevant legislation. Now I have got that done I will be working on assessing the EM Plan from today onwards. As such I do not have any questions or matters to discuss just yet, however if you would like to schedule a teleconference next week sometime I am happy to do so. I am free all of next week so whatever time suits you best.

Regards,

Thomas Cobban
Graduate Environmental Officer
Environmental Services and Regulation - Mining | Central Region
Department of Environment and Heritage Protection
99 Hospital Road | Emerald
Tel 07 4987 9308
Email Thomas.Cobban@ehp.qld.gov.au
Web www.ehp.qld.gov.au

EHP symbol

s.73 irrelevant information, s.37(3)(d) Consult

s.73 irrelevant information

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From: COBBAN Thomas [<mailto:Thomas.Cobban@ehp.qld.gov.au>]

Sent: Wednesday, 9 July 2014 9:54 AM

To: Livia Maiorana

Subject: Registered Address and Postal Address Details

s.73 irrelevant information

RTI DL RELEASE - EHP

Thomas Cobban

Graduate Environmental Officer

Environmental Services and Regulation - Mining | Central Region

Department of Environment and Heritage Protection

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From: Livia Maiorana [lmaiorana@aquilaresources.com.au]
Sent: Thursday, 1 August 2013 1:19 PM
To: Bennett Jeremy
CC: Taylor, Damien J (SKM)
Subject: Washpool Project

Follow Up Flag: Follow up
Flag Status: Completed

Hi Jeremy,

I hope you are well? It's been a while since we last communicated so I thought it was about time we meet again to update you on the status of the Project, the additional work requested in the Assessment Report, and our timeframes for re-submitting our amended EM Plan.

As a brief update on the outstanding items, I can advise you that we have completed another Groundwater Assessment of the information available in line with DEHPs comments in the assessment report and as a result, I believe we will be in a position to present you with a plan to action any outstanding questions in regards to groundwater in order to move forward with this Project to the Draft EA stage.

s.73 irrelevant information

As I stated earlier, I think we are close to a position that will enable us to have a plan to propose to you in order to proceed to a Draft EA stage of assessment.

As such, can I please suggest we meet (subject to your availability) on either Thursday or Friday next week (August 8 or 9). If either of those dates suit, please advise what time suits you and I will send through a proposed agenda.

Thanks and regards,

Livia Maiorana
Project Development Manager

Aquila Resources Limited

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From: Livia Maiorana [lmaiorana@aquilaresources.com.au]
Sent: Friday, 18 July 2014 11:53 AM
To: COBBAN Thomas
CC: CLARKE Liz
Subject: Groundwater Information Request

This message has been archived. [View the original item](#)

Hi Thomas,

A summary of the groundwater bores is presented in Section 8.4 of the revised Groundwater Chapter (8) as follows:

8.4.3.1 Monitoring Network Establishment

A total of nine groundwater bores were installed in the Project area to assist in assessing potential impacts, risks and constraints to groundwater associated with the Project. An additional four monitoring wells were installed in September 2013 on the Project area. The 13 groundwater bores are presented in Figure

Attachments:	
image001.png	(10 KB)
image002.jpg	(4 KB)
Existing_AQ_Logs.xlsx	(75 KB)
SKM_gint_logs3.pdf	(189 KB)
SKM_Logs_56_40R_27_185.xlsx	(22 KB)



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Meeting Agenda: Washpool Coal Mine EM Plan and EA Application

Meeting Date & Time: 17 September 2014, 9:30 am – 11:30am.

Location: Meeting Room 3, 99 Hospital Road, EMERALD.

Facilitator: Thomas Cobban.

Attendees	Department of Environment and Heritage Protection Liz Clarke – Team Leader Thomas Cobban – Graduate Environmental Officer Jo Hardy – Graduate Environmental Officer Washpool Coal/Aquila Resources Livia Maiorana – Project Development Manager Andrew Hocking – Operations Manager Jacobs Damien Taylor – Project Manager
Apologies	N/A

Agenda

Items¹	Description¹
1. Introductions	1. Attendees give brief introduction.
2. EM Plan outstanding issues and requirements which require discussion	1. General Item 1.3 Model mining conditions
	2. Surface Water Item 3.1 Schematics water structures Item 3.2 & Item 3.4 Water balance model Item 3.3 Regulated structures Item 3.6 Monitoring program Item 3.9 Figure 19-5 Item 3.11 Moderately/Highly disturbed ecosystem Item 3.12 Aquaculture Item 3.15 Downstream point Item 3.16 Downstream limit 5km or 20km
	3. Groundwater Item 3.17 EIS Assessment Report requirements Item 3.18 Groundwater model Item 3.19 Final voids
	4. Land Item 4.1 Rehabilitation requirements Item 4.3 Final voids



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	5. Nature Conservation Item 5.1 Deed of Agreement Item 5.2 Ecological Equivalence Assessment Item 5.4 Little Pied Bat Item 5.5 RE 11.4.2 Item 5.6 Fitzroy River Turtle Survey
	6. Waste (added late to the Agenda) Item 6.1 Sewage Effluent
3. EA Application – Withdrawal and Resubmission under Greentape	1. Application process 2. Timeframes 3. Information requirements 4. Public notification and land court
4. EA Application – Continue with current EA application and resubmit EA Amendment to add additional MLs	1. Application process a. Current EA application b. EA Amendment 2. Timeframes a. Current EA application b. EA Amendment 3. Information requirements a. Current EA application b. EA Amendment 4. Public notification and land court a. Current EA application b. EA Amendment
5. Miscellaneous	Any other issues

¹ Outstanding items which were agreed to in the letter written by Mr Stephen J Pilcher (Director, Washpool Coal Pty Ltd) on the 01 September 2014 in reply to the Department of Environment and Heritage Protection EM Plan refusal letter dated 13 August 2014, were not included in the agenda as it is assumed those requirements will be implemented and do not require further discussion.

Commitments, Comments and Agreed Actions

The commitments made by Washpool Coal in the meeting as well as brief comments and agreed actions are provided in the table below. For details on the specific items discussed in the meeting please see Attachment B below.

Assessment Officer:	Thomas Cobban	Reviewer:	Liz Clarke	Reviewer:	Livia Maiorana
Position:	Graduate Environmental Officer	Position:	Team Leader	Position:	Proponent Representative
Date:	19 September 2014	Date:	22 September 2014 & 30 September 2014	Date:	26 September 2014 & <u>October 1 2014</u>



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Minutes agreed to by all parties:

	Name of Representative	Signature	Date
EHP Representative	Liz Clarke		
Washpool Coal Representative	Livia Maiorana		

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Attachment A: List of Washpool Coal Project Commitments and Agreed Actions from Meeting 17 September 2014

Item (Details in Attachment B)	Washpool Coal Commitment (Yes/No/Follow Up/Completed)	Comments, Commitment Details and Agreed Actions
		EHP comments: <ul style="list-style-type: none">Only areas within the Mining Leases will be assessed. The rail area outside of Mining Lease 80202 will not be assessed as part of this EA and will be assessed under the application under the Sustainable Planning Act (or other relevant legislation) once the application has been lodged.
1.3	Yes	Washpool Coal comments; <ul style="list-style-type: none">Will commit to implementing the model mining conditions as per EHP recommendation 1.3 of Attachment B.
3.1	Yes	Washpool Coal comments; <ul style="list-style-type: none">Details of water management structures already in the EIS documents. Committed to including details in the revised EMP/Greentape application documents as per recommendation 3.1 of Attachment B. EHP comments; <ul style="list-style-type: none">Washpool is required to include all release points, monitoring points, structures (dams and pipelines), mining footprint (disturbance areas), mine infrastructure area, ancillary activities (i.e. notifiable activities and environmentally relevant activities etc.) in figures. Washpool Coal comments; <ul style="list-style-type: none">Agreed with required details.



3.2 & 3.4	Yes	<p>Washpool Coal comments;</p> <ul style="list-style-type: none">• Details of water management structures already in the EIS documents. Committed to including details outlined in item 3.2 & 3.4 of Attachment B in the revised EMP/Greentape application documents.• Figures, diagrams and commentary regarding the water balance model will be included in EMP/Greentape application documents.
3.3	Yes, but requiring EHP follow up	<p>Washpool Coal comments;</p> <ul style="list-style-type: none">• Advised that the consequence category assessment of dams and levee has begun as per recommendations for item 3.3 of Attachment B.• Raised concerns regarding the need for hydraulic performance assessment, development of design plans and supporting documentation prior to EA approval and enquired if this could be submitted post EA approval. <p>EHP comments;</p> <ul style="list-style-type: none">• Could not confirm during the meeting whether the hydraulic performance assessment, development of design plans and supporting documentation could be submitted post EA approval and would confirm prior to next meeting.
3.6	Yes	<p>Washpool Coal comments;</p> <ul style="list-style-type: none">• As per recommendations made in item 3.6 of Attachment B, committed to modifying the monitoring program to be in alignment with the REMP and a flow indicator would be added to the program.
3.9	Yes	<p>EHP comments;</p> <ul style="list-style-type: none">• In addition to the item above, EHP requires all release points be identified as either uncontrolled (i.e. spillways) or controlled (i.e. pump valves) in the revised figure.• Advised the proponent that it is preferable to have controlled release points for dams with mine affected water.• Advised that northern sediment dams would be classed as containing mine affected water initially, with provisions in EA allowing for revision after two years.



		<p>Washpool Coal comments;</p> <ul style="list-style-type: none">• In addition to commitments made in item 3.2, the proponent advised that release point details would be included in the revised figures.• Agreed that the northern sediment dams would be classed as mine affected water and two years of monitoring results could be used to change that classification if applicable.• Advised that south-eastern sediment dams would not be releasing to the environment, rather to the main retention dam for release via release point W1, thus, there will be only four release points for the project rather than six.
3.11	Yes	<p>EHP comments;</p> <ul style="list-style-type: none">• Explained the reasoning behind the decision; that the data provided was insufficient at re-classifying the receiving ecosystem as highly disturbed rather than moderately disturbed.• Advised that Washpool Coal would need to undertake further water quality monitoring to assess if the ecosystem is highly disturbed and macro-invertebrate surveys in order for EHP to re-assess the proposal.• Advised that the management intent for moderately disturbed and highly disturbed ecosystems differ and the revised EMP/Greentape application documents would need to reflect that requirement.• Advised Washpool Coal to refer to the <i>Environmental Protection Policy (Water)</i> and <i>Queensland Water Quality Guidelines (2009)</i> for details on the management intent. <p>Washpool Coal comments;</p> <ul style="list-style-type: none">• Advised that a moderately disturbed ecosystem classification would be applied in the revised EMP/Greentape application documents, unless further monitoring data can be provided to EHP to support an argument for a highly disturbed ecosystem classification.• Agreed that the management intent in the revised EMP/Greentape application documents would need to reflect a moderately disturbed ecosystem.

3.12	Yes, but follow up from EHP required.	<p>EHP comments;</p> <ul style="list-style-type: none"> Advised that “Aquaculture” is an identified environmental value in the Mackenzie Sub-Basin Water Quality Objectives Plan and as a result the revised EMP/Greentape application documents will need to address the environmental value whether there are aquaculture operations or not. Advised that the Mackay office would confirm if there was an aquaculture operation at Bingegang Weir and would notify Washpool Coal of the outcome. <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Committed to addressing the recommendations in item 3.12 Attachment B in line with comments once received from EHP.
3.15	Yes	<p>EHP comments;</p> <ul style="list-style-type: none"> Advised that the downstream point referred to in “note b” of Table 8 should be “monitoring point F” rather than “Bedford Weir” as it is approximately 24km downstream of the main release point W1 compared to 34 km. Given the receiving environment is generally defined as around 20 km downstream of the release of mine affected water (see model mining conditions and REMP guidelines), using monitoring point F as the downstream point is appropriate given its distance from release point W1. <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Agreed with EHP comments and committed to changing note b as per the recommendation in item 3.15 of Attachment B.
3.16	Yes	<p>EHP comments;</p> <ul style="list-style-type: none"> Advised that proposed monitoring point F is approximately 24 km downstream of the main release point W1 (sourced from Google Earth), not 7.151km as stated in the previous EMP. It is recommended Washpool Coal change the wording of W22 (equivalent to F21 of the model conditions) to 20km rather than 5km. <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Agreed with EHP comments and committed to changing the wording of W22 (equivalent to F21 of the model conditions) as per the recommendation in item 3.16 of Attachment B.

<p>3.17</p>	<p>No commitment reached. Required follow up from EHP and further discussion in the next meeting in October</p>	<p>EHP comments;</p> <ul style="list-style-type: none"> • Outlined the issue regarding groundwater monitoring and modelling, as follows; <ul style="list-style-type: none"> ○ Groundwater monitoring and modelling has been an issue consistently flagged during the EIS process, in the EIS Assessment Report, in the recent EM Plan Assessment and by the Commonwealths IESC. ○ Both the State and Commonwealth departments agree that groundwater monitoring and modelling to date is inadequate. ○ The EIS Assessment Report gave clear requirements to improve the project groundwater monitoring and modelling prior to EA approval. • Explained the legislative requirements which oblige EHP to consider the EIS Assessment Report requirements when assessing the adequacy of the revised EM Plan. • Raised concerns regarding the lack of monitoring bores in the Alluvial Aquifer particularly between the West of the Mine and the Mackenzie River. • Raised the commitment made by Aquila in the February 2012 response to submission which stated Aquila would drill three monitoring bores between the saturated alluvial bore (AQ106) and the Mackenzie River. • Raised concerns regarding the locations of the two bores AQ027 and AQ185 drilled in September 2013 as they did not target the western alluvial aquifer. This was a concern as it did not adequately assess the western alluvial aquifer between the Mackenzie River and the West of the Mine, therefore not adequately assessing the connectivity between the river and the mine, which were concerns raised throughout the EIS process. • Advised that the best locations for the monitoring bores were between the saturated bore (AQ106) and the Mackenzie River, as that is the area with the most significant alluvial sediments where an aquifer would most likely reside, if in existence. <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> • Stated that over 300 drill holes had been drilled within the project area, with no significant water make encountered. • Stated that bores AQ185 and AQ027 were selected for additional groundwater monitoring
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		<p>locations as the drill sites were already existing and would not require additional cultural heritage clearance and impacts on property owners land.</p> <ul style="list-style-type: none"> Potential locations for the additional monitoring bores were marked on a plan and discussed with EHP during meeting on August 8, 2013. The All four locations were agreed during and post the meeting with an EHP Officer in August 2014 and subsequently were constructed in September 2013. Asked whether the groundwater monitoring requirements could be conditioned in the EA and required post grant of the mining lease and prior to construction/production. <p>EHP comments;</p> <ul style="list-style-type: none"> Advised that the issue would be raised with EHP Managers and would be discussed further in the next meeting to be scheduled in October 2014.
3.18	See above	This item will be dependent on the outcome of the above item.
3.19	Yes	<p>EHP comments;</p> <ul style="list-style-type: none"> Advised that the EM Plan is intended to be a standalone document. If information is not in the EM Plan it is assumed to be missing. The proponent must include all required information and figures in the EM Plan if it is to be considered by the department. Advised that it is possible to have this item as a condition within the EA when approved rather than requiring this information prior to approval. Advised that EHP would provide a draft version of the conditions prior to any draft EA being developed for Washpool Coal's consideration. <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Indicated that more final void details would be included in the revised EMP/Greentape application documents. Agreed that a condition in the EA would be preferred and would like to see a draft version of the conditions prior to a draft EA being developed.

4.1	Yes	<p>EHP comments;</p> <ul style="list-style-type: none"> • Stated that the department agrees that a considerable amount of the information which is applicable to the EHP Guideline (EM1122) is included in the EM Plan, however there are also some critical components absent, such as; <ul style="list-style-type: none"> ○ Addressing all four rehabilitation goals, particularly; ○ Safe to humans and wildlife; and ○ Non-polluting. • The separation of rehabilitation goals, objectives, indicators and completion criteria in to domains to account for differing rehabilitation requirements. For this project, domains could include; <ul style="list-style-type: none"> ○ Levee ○ Final voids ○ Dams ○ Infrastructure ○ Out of pit spoil dumps ○ In pit spoil dumps • Each domain should have rehabilitation objectives which address specific rehabilitation requirements that are designed to prevent environmental impacts or to achieve environmental outcomes specific to that domain. For example, a levee domain will have differing objectives to a spoil dump domain, due to the domains purpose, location, character and risks. • Rehabilitation objectives, indicators and completion criteria must cover the following details; <ul style="list-style-type: none"> ○ Safety measures ○ Water management and water quality ○ Landforms ○ Land use ○ Vegetation
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		<ul style="list-style-type: none"> Rehabilitation success criteria must be measurable and quantifiable. Reference sites must be identified in order to assess the progress of rehabilitation; these can be used in the development of measurable and quantifiable success criteria. A figure with the final landforms and rehabilitation domains should be included in the revised EMP/Greentape application documents. Indicated that EHP could provide a recent example of good rehabilitation requirements accepted by the department. <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Agreed that the rehabilitation requirements outlined in the original EMP were based on outdated standards and that the new rehabilitation requirements would be developed that would meet the new guideline. Advised that the update of the rehabilitation requirements had already begun. Indicated that a figure with the final landforms and domains would be included in the revised EMP/Greentape application documents.
4.3	Yes	<p>EHP comments;</p> <ul style="list-style-type: none"> As per item 3.19 <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> As per item 3.19
5.1	Yes, but with a different outcome to items original recommendation - requires EHP follow up	<p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Asked whether a financial settlement would be applicable to meet the biodiversity offset requirements for the project if the EA application was withdrawn and resubmitted under greentape. Indicated that a financial settlement option was preferred and asked when the payment would be required. <p>EHP comments;</p> <ul style="list-style-type: none"> Confirmed that the new <i>Environmental Offsets Act 2014</i> would apply if the EA application

		<p>was withdrawn and resubmitted under greentape legislation.</p> <ul style="list-style-type: none"> Confirmed that financial settlement was an option for meeting the biodiversity offset requirements. Advised that EHP would confirm when the financial settlement is required.
5.2	See above.	This item has been addressed in the above item.
5.4	Yes, but follow up from Washpool Coal required	<p>EHP comments;</p> <ul style="list-style-type: none"> Advised that this item was not addressed in the EM Plan despite the Little Pied Bat potentially being an offset requirement. Requested that this item be addressed in the revised EMP/Greentape application documents. <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Stated that during flora surveys the consultant noted the regional ecosystem could be habitat for the Little Pied Bat but it was not confirmed. Agreed that this item will be addressed in a revised EMP/Greentape application documents.
5.5	Yes, but follow up from Washpool Coal required	<p>EHP comments;</p> <ul style="list-style-type: none"> Explained that the mapped regional ecosystem 11.4.2 (in the mine pit area) which was stated as cleared in the EM Plan (June 2014) was not formally re-mapped by the Queensland Herbarium. The normal process for remapping regional ecosystems is via an application to the Queensland Herbarium. Advised that EHP expected an application to be made to the Queensland Herbarium before the 11.4.2 RE is considered cleared. <p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Explained that there was potential to use aerial imagery as an alternative to ground truth surveys due to current difficulties with site access. Advised that the Queensland Herbarium would be contacted to confirm whether the use of aerial imagery for remapping was acceptable.

5.6	Completed	<p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Confirmed that the Fitzroy River Turtle survey (May 2013) had been completed and supplied EHP with a hard copy of the report. A soft copy of the report would also be sent. Confirmed that no turtles were found in the area and that nesting sites were not in areas that could be impacted by mining activities. The turtle management plan will be reviewed, updated and submitted to EHP to incorporate the additional information collected during site surveys carried out in May 2013.
6.1	Yes, follow up from Washpool Coal required	<p>Washpool Coal comments;</p> <ul style="list-style-type: none"> Confirmed that sewage treatment effluent was being planned for use in dust suppression. Following EHP comments (below) stated that the application of effluent to roads would be revised, the outcome would be incorporated in to a revised EMP/Greentape application documents. <p>EHP comments;</p> <ul style="list-style-type: none"> If sewage treatment effluent was to be applied to roads the model mining conditions would still apply and the treated effluent quality limits for land disposal would need to be adhered to.
Proponent Decision on Process of EA Application Moving Forward	See to the right	<ul style="list-style-type: none"> Following extensive discussion regarding both the Pre-greentape and Greentape EA application processes the following was confirmed; <ul style="list-style-type: none"> The greentape process would not likely include the information and notification stages as the EIS process already occurred. These stages would only apply if the application had information that was significantly different to the original EIS; and that the administering authority considered that the changes would introduce new and significant potential environmental impacts and / or the changes were reasonably expected to attract submissions. EHP to confirm if changes to the rail would be deemed 'significant' and if subsequent notification will be required as this will form part of the decision to proceed with the current EA approval process or to re-lodge under greentape.



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		<ul style="list-style-type: none">o Under greentape, the draft EA would still be subject to submitter objections.o The mining lease applications have not been publicly notified under the Mineral Resources Act 1989. The Department of Natural Resources and Mines have confirmed that this would not occur until the Notification stage occurred under the EP Act. This is so that both public notification stages would coincide to streamline the process.o EHP would attempt to get the new application fee waived as the application fee had already been paid upon the original application and that DEHP had incorrectly advised the proponent that they had accepted an amendment application to the original EA (that was being assessed) to include MLa801876 and MLa80177.o Washpool Coal is likely to withdraw the current EA application and re-apply under the greentape process with all mining leases (80164, 80176, 80177 and 80202) in the application, however require confirmation if the changes in Project scope are significant and require further public notification. Any changes to the environmental approval process will be subject to corporate approval and a definitive decision would be made at the December Board Meeting.
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Attachment B: List of EM Plan outstanding issues and recommendations.

Comment [LM1]: These need to be reviewed and updated, in accordance with the comments in Attachment A.

Comment [CL2]: To be done by Thomas upon his return.

Item	EM Plan Section	Issue	EHP Recommendation
1. General			
1.1	19.1.9	Environmentally Relevant Activity (ERA) 31 Mineral Processing (pursuant to Schedule 2 of the <i>Environmental Protection Regulation 2008</i>) is not listed as an ERA to be carried out. However, operation of the proposed coal handling and processing plant requires an approval for ERA 31.	Include the following as an ERA in the EM Plan: <ul style="list-style-type: none">ERA 31 Mineral processing – Threshold 2 processing, in a year, the following quantities of mineral products, other than coke – (b) more than 100,000t.
1.2	19.1.9	Notifiable activities 15 Explosive production or storage and 29 Petroleum product or oil storage are not listed in s19.1.9 of EM Plan, but are listed in s19.4.8.4.	Include notifiable activities 15 and 29 in s19.1.9 of the EM Plan.
1.3	All	<p>The revised EM Plan proposes outdated environmental authority conditions which do not align with EHP's Guideline <i>Model mining conditions</i> (EM944). The model conditions should be applied to all mining project applications where public notification of conditions has not occurred.</p> <p>The above model mining conditions also cater for the inclusion of any conditions relevant to site specific environmental protection commitments.</p> <p>For regulated structures (dams and levees), model conditions within Appendix A of EHP's Guideline <i>Structures which are dams or levees constructed as part of environmentally relevant activities</i> (EM634) should be applied.</p>	<p>Revise the proposed draft environmental authority conditions to include;</p> <ul style="list-style-type: none">EHP model mining conditions.All conditions required for site specific environmental protection commitments.
2. Air			



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Item	EM Plan Section	Issue	EHP Recommendation
2.1	19.4.2.6	The PM ₁₀ monitoring commitment made in section 19.4.2.6 (in summer and winter every 4 years) differs to the proposed EA condition B4 and B9 (continuous monitoring for one year). The EIS assessment report also recommends one year of PM10 monitoring in order to validate the air quality model.	Amend section 19.4.2.6 to reflect the proposed environmental authority conditions B4 and B9.
3. Water			
Surface Water			
3.1	19.4.3	<i>Section 19.4.3; Figure 19-5:</i> The water management structures described in this section are not supported by any detailed schematics of their proposed location or release points.	Include detailed schematics of all water management structures and proposed release points.
3.2	19.2.6	<i>Section 4 Revised Draft Environmental Management Plan (Amended June 2014), Section 19.2.6, Water Management (Page 19-10):</i> The EMP does not present an integrated flowchart or diagram to illustrate the on-site mine surface water management system and the various water management structures.	Include a surface water management flowchart/diagram in the EM Plan that visually illustrates the movement and amount of water that runs into the site; identifies and quantifies how water is used both on and off site (e.g. external transfers); and discharges to the receiving environment.
3.3	19.2.7	<i>Section 4 Revised Draft Environmental Management Plan (Amended June 2014), Section 19.2.7, Table 19-5 Mine Water Management System Storages (Page 19-12):</i> The proponent has described the mine water management system storages in Table 19-5. However, the anticipated consequence categories of each dam or levee according to the criteria in EHP's <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (EM635) have not been provided.	Provide a list of all dams and levees proposed on the project site and undertake an assessment to determine the consequence category of each dam or levee (low, significant, or high), according to the criteria in EHP's <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (EM635). This recommendation is in accordance with the model conditions in the EHP guideline <i>Structures which are dams or levees constructed as part of environmentally relevant activities</i> (EM634).

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Comment [DT3]: EHP to clarify if the Hydraulic Performance of structures could be carried over and done during detailed design.

Item	EM Plan Section	Issue	EHP Recommendation
3.4	19.4.3	<i>Section 4 Revised Draft Environmental Management Plan (Amended June 2014), Section 19.4.3, Water Resources (Page 19-32):</i> There is not an adequate amount of information in the EM Plan in relation to the mine water balance for the mine water management system that was modelled using the Goldsim modelling package. The EM Plan should include detailed information on the mine site water balance modelling results.	Include detailed information on the site water balance modelling results in the EM Plan.
3.5	19.4.5	<p><i>Section 4 Revised Draft Environmental Management Plan (Amended June 2014), Section 19.4.5., Water Resources – Environmental Values (Page 19-43) and Washpool Coal Mine Project Receiving Environment Monitoring Program (June 2014), Table 5-2 to 5-4 (Page 15-17):</i></p> <p>There is an inconsistency between the EM Plan and the Receiving Environment Monitoring Program (REMP) design report in relation to the environmental values that need to be protected.</p> <p>It was stated in the EM Plan that:</p> <p>“The Environmental water values to be protected are:</p> <ul style="list-style-type: none"> • the biological integrity of a modified surface water aquatic ecosystem; • the suitability of surface water for domestic, agricultural and recreational use; and • the availability and suitability of groundwater for agricultural use.” 	Replace the identified environmental values to be protected in the EM Plan with the adopted environmental values based on the relevant EPP Water for the project area as presented in the REMP design report.

Item	EM Plan Section	Issue	EHP Recommendation
		<p>However, the REMP design document indicated in Tables 5-2 to 5-4 that the adopted environmental values were based on those Scheduled within the <i>Environmental Protection Policy (Water) 2009</i> (EPP Water) for the Project Area, which is the Mackenzie River Sub-basin Environmental Values and Water Quality Objectives; Basin No.130 (part), including all waters of the Mackenzie River Sub-basin (DEHP, 2011). The relevant waters covered by this document include the Mackenzie River and the southern tributaries, which include Burngrove Creek.</p> <p>As a general rule, the more regionally-relevant guidelines should always be consulted first. The hierarchy is as follows:</p> <ol style="list-style-type: none"> 1. locally-derived Water Quality Objectives (WQOs, most relevant) 2. EPP (Water) – sub regional guidelines 3. QWQG – regional guidelines 4. ANZECC & ARMCANZ (NWQMS, 2000) – national guidelines (least relevant). <p>As the waterway is scheduled under the EPP Water, the proponent should adopt the environmental values listed in this guideline.</p>	
3.6	19.4.5.3	<p><i>Section 4 Revised Draft Environmental Management Plan (Amended June 2014), Section 19.4.5.3., Monitoring (Page 19-44):</i></p> <p>The monitoring section of the EM Plan states:</p> <p>“The likely quality parameters and sampling frequency will be:</p> <p>Monthly - EC, pH, DO, TDS, Turbidity</p>	<p>It is recommended that the proponent amend the monitoring frequency in the EM Plan to be consistent with the proposed REMP design document. Furthermore, the proponent should include “flow indicator” as part of the monitoring program in the EM Plan and REMP reports. The proponent may need to seek further guidance on conducting a REMP by consulting the <i>Receiving Environment</i></p>



Item	EM Plan Section	Issue	EHP Recommendation
		<p>Six monthly – Aluminium, Arsenic, Cadmium, Chromium, Copper, Iron, Lead, Mercury, Nickel, Zinc, Boron, Cobalt, Manganese, Molybdenum, Selenium, Silver, Uranium, Vanadium, Ammonia, Nitrate, Petroleum hydrocarbons (C6-C9), Petroleum hydrocarbons (C10-C36), Fluoride (total), phosphate (PO4) (filterable reactive phosphate), sulphate, TDS, Zinc.”</p> <p>EHP assumes that the monitoring program proposed in the EM Plan is synonymous with the draft REMP design document. If this is not the case the proponent needs to outline the purpose of this monitoring program. The proposed sampling frequency is also inconsistent with that proposed as part of the proposed REMP. In the EM Plan, there is no clear justification for the frequency of sampling for each component of the monitoring program. Nor is there any information demonstrating whether the planned sampling frequency will be sufficient to facilitate the comparison of control site data with test site data, and comparison of test site data against guidelines. Additionally, the proponent has not proposed a “flow indicator” as part of their monitoring program. The rationale provided within the proposed REMP is more appropriate. Further guidance on REMP design is provided in EHP’s REMP guideline (EM1260)</p>	<p><i>Monitoring Program guideline</i> (EM1260).</p> <p>http://www.ehp.qld.gov.au/licences-permits/business-industry/guidelines.html</p>
3.7	Section 4	<p><i>Section 4 Revised Draft Environmental Management Plan (Amended June 2014), Proposed Environmental Authority Conditions: Schedule C - Water (Page 19-45 to 19-62):</i></p> <p>EA conditions have been proposed by the proponent based on the previous “Model Water Conditions for Coal Mines in the Fitzroy Basin”. The current “Model Mining Conditions” are available and</p>	<p>The proponent should revise their proposed EA conditions to ensure that the content is in accordance with the current Model Mining Conditions (as discussed in item 1.3 of this document). Additionally, EHP has the following comments on the proposed <i>Schedule C – Water</i> EA conditions, which should be considered by the proponent when redeveloping the proposed surface water conditions:</p>



Item	EM Plan Section	Issue	EHP Recommendation
		can be found in the link below: http://www.ehp.qld.gov.au/land/mining/pdf/model-mining-conditions-em944.pdf	<p>1. Table 1:</p> <ul style="list-style-type: none"> the proponent needs to identify the number of release points that exist on their site. Table 1 shows there are at least 6 release points on site, but only 1 is listed in Table 4 and Figure 19-5. the proponent should replace the word “contaminant” written in the fourth column with “mine affected water”
3.8	REMP	<p><i>Washpool Coal Mine Project Receiving Environment Monitoring Program (June 2014), Table C-1 and C-2 (Page 50-52):</i></p> <p>The proponent used “µS CM-1” and “MG L-1” units instead of “µS/cm” and “mg/L”.</p>	The proponent should use lower case fonts and change the units into “µS/cm” and “mg/L”.
3.9	Section 4	<p>There is an inconsistency in the draft EA between Table 1 (W1-W6) and Table 4 (only W1) regarding the number of release points.</p> <p>The proponent has not included all the proposed water storage facilities for the project in Figure 19-5.</p>	<p>The proponent has to clarify the total number of their release points.</p> <p>The proponent should amend Figure 19-5 by including:</p> <ul style="list-style-type: none"> Discharge points (W2-W6 should be presented on the map if they are discharge points that release mine affected water to receiving waters) and Spillways of all water storages; Train load out facilities and raw water dam; and Pipes used to pump water between water storage dams.
3.10	REMP 19.4.3.2	<p><i>Subsection 19.4.3.2 (page 19-36):</i></p> <p>The REMF has been inconsistently referred to as “a routine environmental monitoring program” or as a “surface water</p>	The proponent should consistently use “Receiving Environment Monitoring Program” (REMP) as suggested under the EHP’s Model mining conditions.



Item	EM Plan Section	Issue	EHP Recommendation				
		monitoring program". These should be replaced with 'Receiving Environment Monitoring Program'.					
3.11	REMP 19.4.9.2, 19.4.9.7, Table 5-4, Section 8.2, 8.3 and Appendix C.	<p>The following deficiencies are present in Table 5-2, Mackenzie River - Environmental Values, Table 5-3, Burngrove Creek - Environmental Values and Table 5-4, Coal Mine Lagoon - Environmental Values:</p> <p>There is insufficient data to conclude that the condition of aquatic ecosystems is “highly disturbed”. The condition of aquatic ecosystems should be described as “moderately disturbed”, which reflects the management intent or level of protection for this waterway outlined in the <i>Mackenzie River Sub-basin Environmental Values and Water Quality Objectives</i> (DERM 2011) under Schedule 1 of the EPP Water.</p> <p>The proponent use the term “highly disturbed” in the following sections; subsection 19.4.9.2, 19.4.9.7, Table 5-4, Section 8.2, 8.3 and Appendix C.</p>	The proponent should use “moderately disturbed” for the aquatic ecosystem condition instead of “highly disturbed” until there is sufficient data to conclude that the condition of aquatic ecosystems is highly disturbed.				
3.12	REMP	<p>Table 5-6, Water quality objectives:</p> <ul style="list-style-type: none">• The <i>Mackenzie River Sub-basin Environmental Values and Water Quality Objectives</i> (DERM, 2011) should be used as the source for locally derived and validated WQOs for each indicator.• The following parameters should be adjusted as indicated in Table A1 below: <table><tr><th colspan="2">Table A1</th></tr><tr><th>Indicator</th><th>Adjustment required</th></tr></table>	Table A1		Indicator	Adjustment required	<p>Table 5-6:</p> <ul style="list-style-type: none">• The proponent should change the pH value to 6.8-8.5 as the most stringent pH values in their WQOs.• The proponent should change the unit into “mg/L”. <p>Table 5-3, 5-4 and 5-6:</p> <ul style="list-style-type: none">• The proponent should clarify the comment “no commercial aquaculture practices are carried out”.
Table A1							
Indicator	Adjustment required						

Item	EM Plan Section	Issue		EHP Recommendation			
		<table><tr><td>pH</td><td>6.8-8.5</td></tr><tr><td>Sodium</td><td>20 mg/L and 180 mg/L in the ADWG (2011)</td></tr></table> <ul style="list-style-type: none">The comment “no commercial aquaculture practices are carried out” should be clarified as this is an environmental value identified for the Mackenzie River main channel in table 1 of the <i>Mackenzie River Sub-basin Environmental Values and Water Quality Objectives</i> (DERM 2011).Table 5-6 (REMP, page 20) shows the WQOs for pH (Aquatic Ecosystem – SMD) between 6.8 and 8.5. Nonetheless, the proponent presented pH values from 6.5 to 8.5 as the most stringent WQOs.Sodium unit is written as “Mg/L”.	pH	6.8-8.5	Sodium	20 mg/L and 180 mg/L in the ADWG (2011)	
pH	6.8-8.5						
Sodium	20 mg/L and 180 mg/L in the ADWG (2011)						
3.13	REMP	<p><i>Table C1:</i></p> <p>In Table C-1 (page 50), Physical and Chemical Water Quality Measurements and Concentrations and comparison with Guideline Values – 2010/2011:</p> <ul style="list-style-type: none">The only WQO’s provided are for the environmental value of aquatic ecosystems from Table 2 of the <i>Mackenzie River Sub-basin Environmental Water Quality Objectives</i>. Other environmental values such as stock, drinking water, recreation and irrigation should be considered.Drinking water has not been considered as one of the environmental values in Table C-1.		<p>WQO’s for environmental values such as stock, drinking water, recreation and irrigation to be included in Table C1.</p> <p>Drinking water is included in Table C1 to be consistent with the EPP (Water) 2009 for the Mackenzie southern tributaries.</p>			

Comment [LM4]: EHP were going to confirm if there were defined commercial activities at the weir as no commercial activities came up on the Proponents search.

Item	EM Plan Section	Issue	EHP Recommendation
3.14	EA Conditions - Schedule C – Water	The proponent has not changed the word “contaminant” in Table 1, Column 4th (column heading, page 19-45).	The proponent should change the column heading from “Contaminant Source and Location” to “Mine Affected Water Source and Location”.
3.15	EA Conditions - Schedule C – Water	<p>In Table 8, <i>Receiving Water Upstream Background Sites and Down Stream Monitoring Points</i>:</p> <ul style="list-style-type: none"> In “note (b)”, it states that the downstream point should not be greater than 1.6 km from the release point. This should be revised to 20 km in accordance with the location of Monitoring Point F in the Mackenzie River. This distance is more appropriate since the Mackenzie River wraps around the mine site and Monitoring Point F is located just after the end of the mine area which is appropriate and will incorporate any influence of discharge from the northern sediment dam or run-off. The proponent has revised the notes to Table 8 such that it now reads; “(b) the downstream point should not be greater than the Bedford Weir”. The distance between W1 (release point) and Bedford Weir is approximately 40 km which is too far downstream. Therefore, “note (b)” should be amended to ensure that the distance between W1 and a downstream monitoring point is relevant to the mine. 	<p>EHP recommends that a downstream monitoring site be selected that is within 20 km of the mine, as previously recommended.</p> <p><u>Monitoring Point F will be moved to comply with this and the text updated to reflect this new location.</u></p>
3.16	EA Conditions - Schedule	In Condition W22, the proponent should change 5 km to 20 km so the following sentence reads as follows:	The proponent should change the distance of downstream receiving waters from <u>~5 km</u> to <u>~20 km</u> .



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Item	EM Plan Section	Issue	EHP Recommendation
	C – Water	“For the purpose of the REMP, the receiving environment is the waters of the Mackenzie River and connected or surrounding waterways within 20 km downstream of the release of mine affected water.”	
Groundwater			
3.17	19.4.4	<p>The following EIS Assessment Report (May 2012) requirements have not been implemented in the revised EM Plan:</p> <ul style="list-style-type: none">• Requirement: to address the deficiencies in the EIS, EHP will require the proponent to install additional monitoring bores cased to sample the base of the alluvial sediments, both to the west and the north of the proposed pit area.• Requirement: revise the groundwater program to include adequate representation in all aquifers; in particular the Cainozoic Alluvial aquifer is not well represented.• Requirement: install more groundwater bores between the proposed pit and Mackenzie River to investigate any aquifers in the Cainozoic sediments (i.e. closer to the river than the existing bores). However, only two bores, cased in the Burngrove formation, were drilled on the western boundary, rather than being in the Cainozoic Alluvial sediments between the river and mine.• Requirement: obtain twelve months of groundwater data, recording the groundwater results quarterly. However, only one round of sampling has been recorded (December 2013).• Requirement: revise the groundwater model and	<p>The proponent will need to implement the recommendations made in the EIS Assessment Report, <u>and as agreed to in the August 2013 meeting with DEHP in reference to the Groundwater peer review:-</u></p> <p><u>DEHP to confirm what is required regarding the Groundwater recommendations to Proponent at meeting to be scheduled to take place in October 2014.</u></p>

Item	EM Plan Section	Issue	EHP Recommendation
		<p>management plan after twelve months of groundwater monitoring. However, as stated above only one round of sampling was carried out.</p> <ul style="list-style-type: none"> Requirement: propose mitigation measures for the take of water from the Mackenzie River. However, this has not been provided in the EM Plan. Requirement: provide outcomes from discussions with SunWater regarding the potential losses from the river as a result of mining. However, this has not been provided in the EM Plan. Requirement: provide the above information in the revised EM plan. However, not all items above were included in the revised EM Plan. 	
3.18	19.4.4	<p>As a result of the monitoring and modelling deficiencies outlined in the EIS Assessment Report and the number of actions recommended which are still outstanding, the proponent may not have adequately defined the;</p> <ul style="list-style-type: none"> Environmental value of the groundwater environment; Potential impacts of mining activities on the Cainozoic alluvial sediment aquifer; Connectivity between surface water features and the groundwater aquifers in the areas between the Mackenzie River, Burngrove Creek and the mine pit; and Indirect impacts on surface water features in the event that 	<p>Upon completion of the actions listed in item 3.19, the proponent must re-address the potential inadequacies listed in the issue column of this item.</p>

Item	EM Plan Section	Issue	EHP Recommendation
		groundwater impacts are greater than expected upon completion of additional monitoring and modelling.	
3.19	19.4.8	The proponent has indicated that 160 ha of final voids will exist post-closure. However, there are no details of the predicted impact of voids on groundwater resources or how groundwater will interact with the final voids i.e. groundwater infiltration affecting void water quality and quantity.	<p>The proponent will need to;</p> <ul style="list-style-type: none"> • Detail the potential impact of final voids on groundwater resources; • Detail the affect groundwater infiltration will have on the final voids water quality and quantity; • Propose environmental protection commitments in the event that groundwater impacts are likely; and • Propose control strategies if it is found that groundwater impacts are likely.
4. Land			
4.1	19.4.8.7	<p>Rehabilitation</p> <p>The proponent has provided rehabilitation requirements and completion criteria that are out of date and not to the standard the department now deems acceptable. The proponent will need to revise the rehabilitation requirements and completion criteria to be in accordance with EHP's Guideline <i>Rehabilitation requirements for mining resource activities</i> (EM1122).</p>	Revise the rehabilitation requirements and completion criteria provided in the EM Plan to be in accordance with EHP's Guideline <i>Rehabilitation requirements for mining resource activities</i> (EM1122).
4.2	19.4.8.7	The proponent may need to revise rehabilitation requirements depending on the outcome of item 5.5.	See issue column.



Item	EM Plan Section	Issue	EHP Recommendation
4.3	19.4.8	Final Voids The proponent has stated that 160 ha of final voids will be left at the closure of the project. However, there are no schematics or discussion in the EM Plan giving any details about the voids potential impact and subsequent environmental protection commitments and control strategies.	Provide detailed schematics and discussion indicating; <ul style="list-style-type: none">• Planned location(s);• Proposed void design;• Predicted depth or volume of final voids; and• Likelihood of flooding and/or overflow in to the Mackenzie River based on location, design and existing flood models; and• Potential for impacts on environmental values, and if impacts have the potential to occur, the environmental protection commitments and control strategies.
5. Nature Conservation			
5.1	19.1.2.4	Biodiversity Offsets No Deed of Agreement (DoA) has been submitted with EM Plan, despite this being stated as complete within the EM Plan.	A DoA will need to be completed as per the EIS Assessment Report requirements and commitments made by the proponent in the EIS assessment process. <u>This will not be required if new application under greentape is lodged under the new legislation for biodiversity offsets.</u>
5.2	Appendix D - BOS	Biodiversity Offsets – Ecological Equivalence Assessment (EEA) The EEA provided by the proponent in the Biodiversity Offset Strategy (BOS) is not in accordance with the <i>Queensland Biodiversity Offsets Policy 2011</i> (QBOP) requirements. The proponent has stated the EEA provided was preliminary and not a full assessment. The BOS includes 'Preliminary scoring sheets' for EEA – these are based on desktop assessment only and field assessment (ground thruthing) is required. An adequate EEA for the proposed offset area has not	The proponent will need to undertake a full EEA in accordance with the former DERM <i>Ecological Equivalence Methodology Guideline, Policy for Vegetation Management Offsets, Queensland Biodiversity Offsets Policy (2011)</i> ; including both desktop and field assessment. Scores then need to be included in the DoA which also has not been completed.



Item	EM Plan Section	Issue	EHP Recommendation
		been completed.	
5.3	All	Terminology Biodiversity offsets will be assessed under the QBOP, which is now superseded by the <i>Environmental Offsets Act 2014</i> . However, the terminology used in the EM Plan and BOS is 'Queensland environmental offsets policy'.	The proponent will need to change the terminology to QBOP rather than Queensland environmental offset policy.
5.4	Appendix D - BOS	Biodiversity Offset Strategy – Little Pied Bat The EM Plan and BOS do not make clear the offset requirements for the Little Pied Bat. It is understood that the rail corridor plans have changed since the EIS assessment report was issued in May 2012, subsequently changing the impacts on MSES and offset requirements. The EIS assessment report stated that; <ul style="list-style-type: none">• “The proponent stated that clearing of riparian woodlands (RE 11.3.3 and HVR 11.3.2) along the rail corridor would result in the fragmentation of two wildlife corridors including Burngrove Creek and a tributary of Mackenzie River. Loss of up to 5.93 ha of this habitat may also impact on the Little Pied Bat, which is likely to roost in hollows of eucalypts or bloodwoods in riparian woodlands along the Mackenzie River and Burngrove Creek.” The BOS states that; <ul style="list-style-type: none">• “Development of the Project will result in the loss of 0.45 ha patch of remnant of concern regional ecosystem (RE) 11.3.3	The proponent will be required to clarify the impact and offset requirements on the Little Pied Bat in the revised EM Plan and BOS as a result of the revised rail corridor plans. Furthermore the Little Pied Bat will need to be included in the Table 2-1 of the BOS (page 6).

Item	EM Plan Section	Issue	EHP Recommendation
		<p>along Burngrove Creek which is a designated state significant wildlife corridor.”</p> <p>The proponent needs to clarify the impact and offset requirements on the Little Pied Bat in the revised EM Plan and BOS as a result of the revised rail corridor plans.</p>	
5.5	19.4.9.2	<p>Biodiversity Offsets/Rehabilitation Requirements – RE 11.4.2</p> <p>The Regional Ecosystem (RE) 11.4.2 residing in the mining lease which is mapped as a remnant RE under the department’s RE mapping was stated to be non-remnant and/or cleared by the proponent. However, there is no record of the proponent submitting an amendment application with the QLD Herbarium for the remapping of RE 11.4.2. Upon consultation with the QLD herbarium it was questioned whether the RE 11.4.2 was actually cleared or non-remnant, or whether it was drought stricken and therefore still considered remnant vegetation.</p>	<p>The proponent will need to submit an application with the Herbarium for the remapping of RE 11.4.2. This RE cannot be considered to be cleared or non-remnant until this is confirmed by the Herbarium’s mapping.</p> <p>EHP to investigate how to expedite the re-mapping process if Proponent makes application seeks mapping amendment to the Qld Herbarium.</p>
5.6	19.4.9	<p>Fitzroy River Turtle and White Throated Snapping Turtle</p> <p>The EIS Assessment Report states that:</p> <ul style="list-style-type: none"> “At the time of preparation of the EIS, the presence of the Fitzroy River Turtle and White-throated Snapping Turtle and the extent of nesting habitat within the project area were not yet known and were still to be confirmed through a field survey. The proponent provided a commitment to undertake further surveys during the nesting season to assess the presence of the Fitzroy River Turtle and nesting habitats within the project area, including survey sites in the 	<p>The proponent must provide details of the additional field surveys as per the EIS assessment report requirements and the commitment provided during the EIS assessment process. The following actions must be incorporated in a revised EM Plan;</p> <ul style="list-style-type: none"> Discuss the additional survey results; Revise environmental values; Revise environmental impacts; Revise environmental protection commitments;

Comment [CL5]: EHP cannot expedite this process as it is out of our control and depends on the Herbarium’s resourcing availability.



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Item	EM Plan Section	Issue	EHP Recommendation
		<p>Mackenzie River, Burngrove Creek and Coal Mine Lagoon.”</p> <ul style="list-style-type: none">“The draft Turtle Management Plan must then be amended and updated according to the results of this additional field work”. <p>The revised EM Plan contains no details of any additional turtle surveys. The Fitzroy River Turtle and White-throated Snapping Turtle are significant environmental values that need to be protected.</p>	<ul style="list-style-type: none">Revise control strategies; andUpdate and finalise the draft turtle management plan as per the EIS Assessment Report requirements.
6. Waste			
6.1	19.4.10.5	The EM Plan states effluent from sewage treatment plants will be applied to areas of land, however no details of where the treatment area is located, expected volumes or rates of application are included.	Include details of where the treatment area is located, expected volumes and rates of application.



From: BENNETT Jeremy [Jeremy.Bennett@ehp.qld.gov.au]
Sent: Friday, 30 August 2013 8:43 AM
To: Livia Maiorana
CC: FRANKISH John
Subject: FW: Washpool Response to DEHP August 2013.doc
Attachments: Washpool Response to DEHP August 2013.doc

Hi Livia

Attached is the peer review comments regarding the groundwater report submitted for Washpool. If you have any queries concerning the review please forward all queries to me.

Kind Regards

Jeremy

Jeremy Bennett MSc | Senior Environmental Officer (ES Mining)
Environmental Services & Regulation – Central Region

Department of Environment & Heritage Protection

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Washpool Coal Mine Project
Review of Peer Review

Initially it should be noted that the DNRM officer/s who had previously been involved in reviewing groundwater issues for this project are no longer employed by DNRM.

Hence I have reviewed the Peer Review, parts of the EIS groundwater documents and previous DNRM comments to develop an understanding of the project background, groundwater conditions and the issues.

In section 3.2 of the Aquade document I believe the two dot points which summarise the 'most important information of relevance' are valid. These being;

- understanding the stratigraphy between the mine and the river and
- the hydraulic properties of the saturated material within that stratigraphy.

Drilling logs for monitoring bores

I understand that the role of DNRM here is to comment on whether the current Peer Review and recommendations adequately deal with previous DNRM concerns. However I think it important to raise a concern that appears not to have been touched on, in that there appear to be no drilling logs available for any of the monitoring bores. Surely it is important to chase these logs up with the proponent given stratigraphy is such an important issue. I would strongly recommend we get hold of these logs to enhance our understanding and we can then also enter them on the DNRM groundwater database. I note in section 6.1 of the Aquade report that the author recommends additional drilling and monitoring well installation 'with detailed logging of the boreholes'. Again, lets get some logs for the old holes as well.

Determining reference points for groundwater level measurement in AHD

Similarly it appears that the reference points of the monitoring bores, from which water levels are measured may never have been levelled. This is a basic issue that needs resolving and has been commented on by Aquade.

Additional Monitoring bores

The reviewer recommends that two additional monitoring bores be drilled to the north and two to the west. He suggests that it is more likely that the bores to the west will strike saturated alluvium and I would agree. I support the additional bores as suggested.

Need for a history of groundwater level data

The reviewer advises that he does not believe it is necessary to have a comprehensive transient database of groundwater level data. This appears to be in response to the DNRM request for 12 months of water level data. Based on figure 8-9 of the groundwater chapter it would appear that the proponent monitored groundwater levels for some 3.5 months in the later part of 2009 then monitored again for a small period in June 2010 and took one reading in December 2011. Perhaps there is a reason for this but it does not relate to enhancing our understanding of hydrogeology. Have any

water levels been monitored since December 2011? It is hoped that the monitoring performance improves in the future?

An understanding of the seasonal variation in groundwater levels is important in understanding recharge for a start. I note also that in Appendix G of the EIS documents, in section G.2.2 the proponent states that 'due to limited water level measurements and the uncertainty in the validity of the measurements to represent an average or steady state condition'. Hence the modeller was clearly concerned about the lack of data. The peer reviewer himself suggests it would be advisable for the proponent to have an understanding of the maximum groundwater levels that are likely during a wet season. So some understanding of seasonal change in groundwater level would be useful. In fact in the Aquade document under the heading 'Background data and modelling' the reviewer acknowledges that if they were to meet IESC requirements they would need 'further description of the likely recharge sources and discharge pathways'. More data would help with that understanding.

Despite all this I consider that the proposal by Aquade to update the conceptual model after the new monitoring bores are installed, utilising all available data, and recalibrating the numerical model to one future round of water levels is an acceptable way forward at this point.

Landholder bore survey

The land holder bore survey is supported by the Peer review. It has been a constant request from DNRM. If it has not been carried out yet, there needs to be a commitment to get it done as soon as possible.

Monitoring Bore Program

Whilst there is discussion in the Aquade review about additional monitoring bores it makes minimal mention about the previously stated concerns of DNRM about the final content of the monitoring program. It is not clear to me what the current proposed program is but I would think that water level monitoring should be carried out at the existing 9 bores and at the additional 4 bores to be drilled. As 4 of the sites appear to be in the mine footprint, I assume there will be a commitment to replace these bores nearby as the mining progresses.

The monitoring program should include the monitoring of Coal Mine Lagoon.

Predicted inflow volumes from river to pit

In section 4.0 of the Aquade document the reviewer carries out a useful 'sanity check' of the predicted inflow from the river to the mine. He suggests that on the assumption that there is no connection by way of alluvium or Tertiary cover from the river to the mine that up to 20 ML/yr potentially may come from the river through the coal on the northern side of the mine. Something similar may come from the west and something less, through a greater thickness of far less permeable interburden will come from both north and west. He then goes on to say that on this basis the 50ML/year predicted by the model is more likely to be an overestimate than an underestimate. I would suggest that the reviewers figures just support the model figure.

Note also that in the last paragraph of section 4.0 there is a typographical error which states 50ML/day when it appears that it should state 50ML/year.

However it should also be noted that on the western side of the pit the assumption that there is no pathway through the overburden above the Permian bedrock, may be incorrect and has not been completely disproven. Note that when drilled in 2009 bore AQ105/106 had a depth of 23 metres to the base of the alluvium (assumption based on data available) and a water level of 11.53 below the top of the casing. This results in saturated depth of alluvium of some 11.5 metres just west of the pit edge. See figure 8-4. Note that by December 2011 the water level drops to 16.8 metres below top of casing. This drop seems unusual given the rainfall and streamflow conditions that prevailed for at least part of the period, see figure 8-9 although that is another issue.

It is noted in the Aquade report that the author states that 'the conceptualisation is that the water table is within the bedrock to the north and only slightly above the top of the bedrock to the west'. The definition of 'slightly' becomes of interest here. If there is some saturated alluvium/ tertiary above the western pit bottom then the 50ML/yr figure will increase. This has been the basis of the previous DNRM concern and should be considered as perhaps part of a sensitivity analysis in any future review of the model.

Groundwater Model issues

In section 6.1 of the Aquade report the author notes the inadequacies of utilising boreholes in model calibration where they are accessing multiple units or aquifers. He states that only data from monitoring wells with discrete screened intervals should be used in subsequent model calibration, rather than data from open bore holes. I completely agree.

Furthermore in the section of the Aquade report 'Commitment to Monitoring and Mitigation' the author notes that the commitment in the EIS to continuously monitor groundwater conditions and to update the groundwater model during dewatering is important. Again this is supported by DNRM.

Additional information in Table 2 includes:

The author of the Aquade report concurs that the model should have separate layers for alluvium and tertiary. This should be incorporated into future model updates. This is supported by DNRM.

Author raises some concerns about information presented in table G-6 and the proponent should be asked to elaborate on this. Peer reviewer should elaborate first.

North south geological cross section

The author also recommends a revised north south cross section to more accurately examine potential connection between the river and the mine. DNRM agree.

Dewatering Requires a Licence to take groundwater

It is noted that the mine site lies within the Highlands Groundwater Management area of the Fitzroy Water Resource Plan (WRP).

Upon review and release of the WRP in December 2011, groundwater is now regulated under the WRP. Section 116 of the WRP provides provisions on the limitation on taking of groundwater under section 20 (6) of the *Water Act 2000*. Specifically, section 116 (2) of the WRP allows the take of groundwater in a groundwater management area (Schedule 3 of the WRP) under a water permit, a water licence, an interim water allocation, a water allocation, under section 124 of the WRP (taking groundwater using prescribed existing groundwater works) or for stock and domestic purposes.

In accordance with section 32 of the WRP, a water licence application associated with the take of groundwater in a groundwater management area (other than from Callide Groundwater Unit 1) for dewatering purposes can be accepted.

Therefore, in accordance with the provisions of the WRP, the proponent will need to apply for a water licence to authorise the proposed groundwater dewatering activities.

A. Bleakley

RTI DL RELEASE - EHP



WHEELER Kathy

From: Gawne Callum
Sent: Thursday, 26 July 2012 2:04 PM
To: Bennett Jeremy
Subject: Meeting notes Washpool 26 July

Jeremy

Meeting with Damien Taylor SKM and Livia Maiorana Aquila

General notes

- Darrell hunter is the washpool project manager

s.73 irrelevant information

Ground water

- plan to increase monitoring program and in particular in the alluvium. additional 3 bores in the alluvium?
- concerned that the recommendation of 12 months of monitoring data pre-mining is not feasible - it doesn't fit in well with their proposed timelines (eg board approval) - and instead suggest 'a minimum of 6 months'
- the new bores wouldn't go in until operations begin (PoO has been approved)
- will try to get trigger levels pre-wet season
- the monitoring bores that disappeared with the update was because they are located in pit and would be destroyed upon starting
- the data gaps are due to flooding impeding access
- private bores are 4-5km away (drawdown effects 1.5km). they haven't been sampled

s.73 irrelevant information

Actions for yourself

- find out if the trigger levels can be conditioned somewhat like "trigger levels must be supplied in a report X days after grant of ea"
- find out if the 12 months of monitoring data is needed pre mining - or if this can be reduced. washpool to supply a business case?
- find out when the offset due date is
- do they need 5 decimals on their gps points

Cheers

Callum Gawne

Graduate Environmental Officer
Environmental Services (Mining)
Phone: 07 4837 3334

Department of Environment and Heritage Protection

209 Bolsover St
Rockhampton QLD 4700

WHEELER Kathy

From: Livia Maiorana <lmajorana@aquilaresources.com.au>
Sent: Thursday, 12 June 2014 9:57 AM
To: BENNETT Jeremy
Subject: Revised EM Plan - Washpool Coal Project

Hi Jeremy,

Hope you are well? Long time since our last communication so I thought I would send you an email to give you an update.

We have been busy actioning some last remaining project actions, of which we:

- s.73 irrelevant information
- conducted further monitoring;
- revised the Groundwater report with the new results and redid the model;
- s.73 irrelevant information
-
-
-
-
- lodged a Water Report (IESC submission for the Department of Environment).

We are now at the stage where we are finalising the EM Plan and provide you with an update to each DEHP assessment report comment in the table below.

DEHP Assessment Report Comment	Status
4.5.3 Geology Provide a full illustrated description of the geology based on 266 core logs. Use this description to update impacts on groundwater.	The project team have acquired additional groundwater data in the alluvium and this information will be inserted in to the overall groundwater model and included in the revised EM Plan.
4.7 Waste Include a date for when the waste management plan is to be completed.	A submission date will be inserted into the EM Plan.
4.8.1 Surface Water Amend the EM Plan document to reflect the comments in Appendix A.	The EM Plan has been updated to reflect the comments in Appendix A (see comments below).
4.8.2 Flood Impacts Recommendation of certain conditions be included in the EA for levee buffer zone, construction and maintenance.	The EM Plan has been amended to reflect the conditions as provided by DEHP.
4.8.3 Groundwater Update the EM Plan prior to the commencement of mining to include information on the following: <ul style="list-style-type: none">- Include two additional monitoring points in the alluvium (west and north)- Implement a quarterly monitoring programme for a minimum of 12 months prior to commencement of the box cut.	Washpool have selected suitable sites for the installation of the monitoring bores and conducted a monitoring programme. Washpool has updated the EM Plan on collection of the groundwater data and the groundwater model updated. The results will be provided as outlined in section 4.8.3 of the assessment report.
5.0 Adequacy of the EM Plan A revised EM Plan is to be prepared for the purposes of assessment under the EA process pursuant to Chapter 5 of the EP Act. The revised EM Plan is to address those matters outlined in the assessment report and appendix A and summarised in this table.	As commented in this table.
Appendix A Comments on the draft EM Plan Sewage Effluent Inconsistent description of how effluent will be	EM Plan has been updated to reflect the containment, management and disposal of sewage effluent waste on site.

DEHP Assessment Report Comment	Status
managed on site.	
s.73 irrelevant information	
Water Storage Facilities Update of Figure 19-5 to show additional detail of water storage facility infrastructure.	Figure 19-5 will be updated during detailed design once the relevant infrastructure is designed. This will be integrated into the EM Plan and submitted to the DEHP prior to construction.
Inconsistent surface water terminology Inconsistent naming of dams across the MLa.	The EM Plan has been updated to reflect a consistent naming convention.
s.73 irrelevant information	
Revised groundwater monitoring programme Insufficient monitoring locations are identified within table 12, including the lack of identifying private bores that may be used for monitoring purposes. Insufficient details are provided in table 13 for defining trigger values. Lack of detail of how the groundwater monitoring program would achieve its stated goals.	Washpool have selected suitable sites for the installation of the monitoring bores and conducted a monitoring programme. Washpool has updated the EM Plan on collection of the groundwater data and the groundwater model updated. The results will be provided as outlined in section 4.8.3 of the assessment report. and tables 12 and 13 will be updated to reflect the data collected.

I am aiming to get you the revised EM Plan late next week. In addition to the revised EM Plan, we will also submit a revised REMP, updated groundwater chapter, soils technical report and biodiversity offsets strategy.

It would also be good to touch base with you after you have received it, as such, can I suggest we meet on July 8 to discuss timeframes and process from here.

Thanks and regards,

Livia Maiorana
Project Development Manager



Aquila Resources Limited

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From: WRNB System Administrator [water.workrequests@derm.qld.gov.au]

Sent: Thursday, 17 July 2014 6:03 PM

To: CLARKE Liz

CC: CAGNEY Justin

Subject: WRNB ID 1072 - New Water Work Request Created : EMP Review - Washpool Coal Pty Ltd - Washpool Coal Mine Project

Follow Up Flag: Follow up

Flag Status: Flagged

A new work request has been submitted to the Work Request Notice Board.

Service Group: Water (WAS)

Request Task: EMP Review

Proponent / Company: Washpool Coal Pty Ltd

Facility Name: Washpool Coal Mine Project

Facility Location: MLA80164

Project File Details: Project ref. 342833

Date of Request: 17/07/2014 12:00:00 AM

Due Date of Request: 1/08/2014 12:00:00 AM

Urgency: Normal

Client Region: Central Region

Category: Mining

To view more information about this work request visit: [More Info](#)

To view the responsible officers for this work request visit: [Responsible Officers](#)

To view a list of recent work requests please visit the [Work Request Notice Board](#)

You have received this email because you are either the requesting or managing officer.

Request Summary

Service Group	Water (WAS)		
Status	New	Hours Worked	0
Request Task	EMP Review	Proponent / Company	Washpool Coal Pty Ltd
Facility Name	Washpool Coal Mine Project	Facility Location	MLA80164
Project File Details	Project ref. 342833	Date of Request	17/07/2014 12:00:00 AM
Due Date of Request	1/08/2014 12:00:00 AM	Urgency	Normal
Client Region	Central Region	Category	Mining

Requesting Officer

First Name	Liz	Last Name	Clarke
Phone	4987 9386	Office	Emerald
Region	Central	Position	Team Leader
Email	Liz.Clarke@ehp.qld.gov.au		

Manager

Manager First Name	Justin	Manager Last Name	Cagney
Manager Phone	4987 9303	Manager Position	A/Manager - ES Mining

Request Details

It is requested that AERDS please review the revised Environmental Management Plan (EM Plan) for the Washpool Coal Mine Project. A number of recommendations were provided in the EIS Assessment Report (May 2012) in regards to surface water, particularly concerning the inadequate information associated with the proposed mine water release scenarios (within the Fitzroy Basin) and the REMP.

EHP is concerned that all matters may not have been addressed, as this is the case for the EM Plan groundwater review that has occurred to date.

Applicable surface water information and recommendations is in the following pages of the EIS Assessment Report: 20-24, 48, 50 - 55.

As the EM Plan Assessment Report is due mid August 2014, it is requested that the advice please be provided at the beginning of August 2014 to allow EHP to consider all information (including any client liaison) in our case to accept or reject the EM Plan.

Relevant Documents

The relevant documents have been attached. Please request any additional documentation that may be required.

EHP is happy to meet with DSITIA via teleconference to discuss any issues.

Justification

To ensure that all matters raised in the EIS Assessment Report have been appropriately addressed by the proponent to ensure ecosystem health and riverine protection, in line with the EPP Water and ANZECC Guidelines.

Other

Budget Availability

Previous Contacts

Attachments

From: McLaughlin Andrew [Andrew.McLaughlin@dnrm.qld.gov.au]
Sent: Thursday, 1 August 2013 2:16 PM
To: Bennett Jeremy
Subject: FW: SCLRD2012/000091 Washpool Coal

Hi Jeremy

From the sounds of this email (below) from Livia - she is confused about the difference between a validation application and a protection decision application - and it sounds like they are still chasing a protection decision (not validation) and have shifted they proposed access road further north somewhat to reduce SCL fragmentation.

So at this stage it looks like the EA will still be dependant on an SCL Decision being issued - but I don't foresee anything that would prohibit that from happening - other than ongoing delays in SKM coming up with necessary info to support the application.

Cheers and thanks for your call.

Andrew McLaughlin
 Senior Natural Resource Management Officer
 Natural Resource Assessment
Telepho 07 5480 5336 **Facsimile:** 07 5480 5301
Mobile: [sch4p4(-6)]
 Department of Natural Resources and Mines
 27 O'Connell St, Locked Bag 383 Gympie 4570

From: Livia Maiorana [mailto:lmajorana@aquilaresources.com.au]
Sent: Thursday, 1 August 2013 1:39 PM
To: McLaughlin Andrew; Taylor, Damien J (SKM)
Cc: Crowley Susan
Subject: RE: SCLRD2012/000091 Washpool Coal

Hi Andrew,

Firstly, apologies for the delayed response to this email. I think it was a matter of both Damien and I waiting for each of us to respond!

Secondly, apologies for not being available to meet with you regarding this application. Richard Webb who stood in for me and Damien however have briefed me on the meeting and the outstanding issues that remain with regards to the validation assessment.

Damien and his team are working together to prepare the additional information and will prepare a response to you with regards to timing of this information.

s.73 Irrelevant information

Due to this change, Damien is re-doing the information on the application to account for the new path and will provide all the additional information as requested in your previous meeting.

Damien will advise you shortly on estimated timings in regards to when you can expect the additional information.

Thanks and regards,

Livia Maiorana
 Project Development Manager

 Aquila_Logo_Letterhead
 (2).png

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From: McLaughlin Andrew [mailto:Andrew.McLaughlin@dnrm.qld.gov.au]
Sent: Monday, 29 July 2013 1:32 PM
To: Taylor, Damien J (SKM)
Cc: Crowley Susan; Livia Maiorana
Subject: RE: SCLRD2012/000091 Washpool Coal

Hello Damien

I just thought I'd check in to see whether there is any progress with how Aquila Resources Ltd wish to proceed with this SCL application - following our meeting at SKM in South Brisbane on 05/07/13 which Richard Webb attended on behalf of Aquila.

At that meeting we identified some options for for progressing the SCL issues which relied on the applicant either choosing to pursue an SCL Validation application over the impacted area associated with the Washpool access road construction or to provide more specific detail around the extents of permanent and temporary impacts on SCL and also demonstrable restoration of predevelopment condition for any proposed temporary impacts.

Could you please provide me with an update on yours and the applicant's intentions regarding the current SCL Protection Decision application and its advancement?

Thanks in advance

Regards
 Andrew McLaughlin
 Senior Natural Resource Management Officer
 Natural Resource Assessment
Telephone: 07 5480 5336 **Facsimile:** 07 5480 5301
Mobile: [sch4p4(6)]
 Department of Natural Resources and Mines
 27 O'Connell St, Locked Bag 383 Gympie 4570

From: Taylor, Damien J (SKM) [mailto:DTaylor@globalskm.com]
Sent: Tuesday, 12 February 2013 4:41 PM
To: SCL North
Subject: FW: SCLRD2012/000091 Washpool Coal

From: Taylor, Damien J (SKM)
Sent: Tuesday, 12 February 2013 4:27 PM
To: 'susan.burt@dnrm.qld.gov.au'
Cc: 'Karyn.Whyte@dnrm.qld.gov.au'; Livia Maiorana (hmaiorana@aquilaresources.com.au)
Subject: FW: SCLRD2012/000091 Washpool Coal

Good Afternoon Susan

Please find attached the response to your notice issued to Washpool Coal Pty Ltd dated 18 January 2013.

Livia Maiorana from Aquila Resources Ltd, being the proponent for the Washpool Coal

Project, has instructed me to prepare a response to your notice and forward this to you.

Please find attached the following:

- 1) Covering letter
- 2) SCL Memo and associated maps.
- 3) Attachment A: Proposed access road construction methodology.
- 4) Attachment B: Reconnaissance Survey of soils within Transport Corridors (4T Consultants, 2011).
- 5) Attachment C: Original SCL Application and supporting information (Nov, 2012)

I hope this addresses your concerns raised in the notice; however should you have any questions regarding any of the attached, please don't hesitate to call.

Kind Regards.

Damien Taylor

Power & Energy Portfolio Manager (Qld)
Water & Environment

Sinclair Knight Merz

Cnr Cordelia & Russel Streets, South Brisbane QLD 4101

T +61 7 3026 7253 F +61 7 3026 7306 M +61 [sch4p4\(6](tel:0800730267) E dtaylor@globalskm.com
www.globalskm.com

From: Livia Maiorana [<mailto:lmajorana@aquilaresources.com.au>]

Sent: Friday, 18 January 2013 11:38 AM

To: Taylor, Damien J (SKM)

Subject: FW: SCLRD2012/000091 Washpool Coal

Hi Damien,

Happy New Year!

Just left you a long winded voicemail message on your phone....

In summary, please find attached an information request from DNRm re: The SCL Assessment Application.

Thanks and regards,

Livia Maiorana

Project Development Manager



Description:
Aquila_Logo_Letterhead

Aquila Resources Limited

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From: Whyte Karyn [<mailto:Karyn.Whyte@dnrm.qld.gov.au>]

Sent: Friday, 18 January 2013 10:47 AM

To: Livia Maiorana

Subject: SCLRD2012/000091 Washpool Coal

Hi Livia,

Please find attached a copy of the signed application requisition relating to the Washpool Coal SCL protection decision application. The original will be forwarded to you by post. Should you have any questions in regards to this notice, please do not hesitate to contact Sue Burt on 07 4999 6960.

Kind regards,

Karyn Whyte
Natural Resource Management Officer
Department of Natural Resources and Mines
Telephone: 074999 6829 Email: karyn.whyte@dnrm.qld.gov.au
30 Wood Street, Mackay, Q 4740
PO Box 63, Mackay Q 4740

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