From: CLARKE Liz [Liz.Clarke@ehp.qld.gov.au]
Sent: Wednesday, 9 March 2016 4:23 PM
To: STEVENS Scott
Subject: RE: Reference to Meeting Notes from last week - Cockatoo Creek Diversion

Hi Scott,

Thanks for your email and it was nice to meet you too. I understand that DNRM's role is to provide technical support to EHP and not to endorse the diversion in terms its approval under an EA amendment. Once Skye sends through the updated report I will be in touch with you in regards to the specific advice that EHP requires to inform our decision.

You are correct in that watercourse diversions are generally assessed as a major EA amendment. However, as this diversion was originally approved as part of the EIS it is considered that the majority of environmental impacts have already been assessed and approved. In the event that the realignment would significantly alter the already approved environmental impacts (i.e. significantly increasing the level of environmental harm), then EHP would likely deem the application to be a major amendment. As the pre-lodgement meeting indicated that the design will not significantly increase the level of environmental harm (when compared to the EIS approval), then the current thoughts are that the application may be able to be assessed as a minor amendment. If you do happen to come across any additional information whereby you think that the level of environmental harm may be significantly increased as a result of the realignment, please let me know.

Happy to discuss further if you would like.

Kind regards

Liz Clarke
Team Leader (Assessment)
Business Centre (Coal) | Coal and Central Queensland Compliance
Department of Environment and Heritage Protection

P 07 4987 9386
99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

I acknowledge the Traditional Owners and custodians of the land I work on as the first people of this country.

From: STEVENS Scott
Sent: Wednesday, 9 March 2016 10:16 AM
To: CLARKE Liz <Liz.Clarke@ehp.qld.gov.au>
Subject: Reference to Meeting Notes from last week - Cockatoo Creek Diversion

Hi Liz,

I refer to the meeting notes provided by Skye Davis from the discussions last week in Emerald.

I would like to reaffirm our role in the process of providing technical advice to DEHP as part of our ongoing support with the transition of watercourse diversions across to EA's. Our advice doesn't extend to the provision of support for a proposed

diversion or whether the diversion meets the statutory requirements of all legislation.

At the meeting, I offered the preliminary advice that we undertook a brief review of the functional design report and thus, made comment on issues that were identified and indicated that the functional design report was comprehensive and appeared to have addressed the criteria under the current watercourse diversion guidelines. We have not undertaken an assessment that we would normally complete if this was an application for a water licence. I am more than happy to provide further advice in respect to the report, please advise as I would be happy to comment if required.

I will be responding to Skye about the meeting notes and particularly the last section about our satisfaction and support of the diversion. Will cc you into the response.

On a side note, I had the understanding that all diversions would require a major EA amendment rather than a minor, can you clarify the approach DEHP is taking with this proposal and is this the intended approach of DEHP in the future?

Finally, good to meet you in person.

Regards

Scott Stevens
Senior Project Officer
Central West Region
Department of Natural Resources and Mines

Biloela Research Station
LMB 1 Biloela Q 4715
Telephone:0749929104 Fax: 0749923468
Email:scott.stevens@dnrm.qld.gov.au
www.dnrm.qld.gov.au

From: STEVENS Scott [Scott.Stevens@dnrm.qld.gov.au]
Sent: Wednesday, 9 March 2016 10:16 AM
To: CLARKE Liz
Subject: Reference to Meeting Notes from last week - Cockatoo Creek Diversion
Attachments: Meeting Minutes FP Technical Review of Functional Diversion Design- 2 Ma....doc; Meeting Minutes FP Technical Review of Functional Diversion Design- 2 Ma....pdf

Follow Up Flag: Follow up
Flag Status: Flagged

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MEETING MINUTES

Foxleigh Plains Cockatoo Creek Diversion & Levee

Technical Review of Functional Design
DNRM and DEHP Stakeholder Engagement Meeting

2 March 2016
03:00 pm to 04:00 pm
Author: Skye Davis

Present:

Company	Attendance
Anglo American	Skye Davis (SD)
Technical Specialist for Anglo American	Ben Phillips (Senior Water Engineer Hatch, BP1)
	Ben Pearson (Senior Geomorphologist Hydrobiology, BP2)
Department of Environment & Heritage Protection (DEHP)	Jacob Toe (JT)
	Liz Clarke (LC)
	Ashley Tones (AT)
Department of Natural Resources and Mines (DNRM)	Scott Stevens (SS)
	Sarah Hellman (SH)

Apologies: Jeremy Marston (Anglo American, JM), Jason Fittler (Anglo American, JF)

Meeting Open: 03:00 pm

Purpose of the meeting:
The purpose of the meeting was to attempt to close out an action from the pre-lodgement meeting surrounding the EA amendment application for the Foxleigh Plains Creek Diversion and Levee Project which involved ensuring Department of Natural Resources and Mines (DNRM) are satisfied with the functional design and design intent of the diversion prior to lodgement of the EA amendment application to Department of Environment and Heritage Protection (DEHP).

Resources provided prior to the meeting:

- Full Draft Functional Design Report written by Hatch and Hydrobiology of the Cockatoo Creek Diversion and Levee for the Foxleigh Plains Project
- Summary slide pack for this meeting which summarised the full functional design for discussion at this meeting
- EA Amendment Application pre-lodgement meeting slide presentation presented on 16 March 2016 to DEHP in Emerald. This was provided to ensure DNRM had the same information as DEHP.

Executive Summary

Meeting Agenda Item	DNRM Summary	DEHP Summary
Regulations consulted in functional design	Acknowledgement that correct regulations, legislation and guidelines used in functional design No Concerns Raised	Acknowledgement that correct regulations, legislation and guidelines used in functional design No Concerns Raised
Design criteria adopted in functional design	Agreed that even though the DNRM 2014 guidelines had not yet been adopted by DNRM that they are the correct design criteria to be used given they are more recent and a more detailed assessment of the diversion performance from the 2002 criteria. No Concerns Raised	Acknowledgement that correct criteria had been adopted in the functional design No Concerns Raised
Flood Model	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised
Comparison of Physical Parameters	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised.
In Channel Hydraulic Assessment	Acknowledgement that the in channel hydraulic assessment meets the required guidelines No Concerns Raised	Acknowledgement that the in channel hydraulic assessment meets the required guidelines No Concerns Raised
Stream Power & Sediment Transport	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements with no concerns raised.	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements with no concerns raised.
Flood Impacts	DNRM acknowledged that the project is low risk and is in similar design characteristics to other diversions in the Bowen Basin. No concerns raised and therefore acknowledgement impacts were similar to the EIS.	No concerns raised and therefore acknowledgement impacts were similar to the EIS.
Habitat and Vegetation	Acknowledgement that the functional design contains more information than normally presented in a functional design document and that the watercourse characterisation guideline had been met. Monitoring programs and vegetation planting programs presented have met relevant guidelines for protection of habitat values. No concerns raised.	Acknowledgement that monitoring programs and vegetation planting programs presented has met relevant guidelines for protection of habitat values. No concerns raised.

Introduction Commentary (SD)

- Introduction of technical specialists from Hatch and Hydrobiology who have written the functional design. Ben Phillips from Hatch is a Senior Water Engineer and Ben Pearson from Hydrobiology is a Senior Geomorphologist.
- Introduced the members of DNRM and DEHP to these technical specialists.
- Outlined purpose of the meeting to close out action from pre-lodgement meeting and provided copies of the slide pack presentation that provided an executive summary of the full draft functional design. In particular, it was noted that this meeting was to ensure that DNRM are satisfied that the design and design intent are adequate for DEHP to commence assessment of the EA amendment application documents for the Foxleigh Plains creek diversion and levee project when submitted in the next couple of weeks.
- DNRM and DEHP had in front of them the full copy of the functional design to flick over to if required when going through the executive summary presentation.
- The agenda included the following topics to be discussed:
  - Regulations consulted in functional design
  - Design criteria adopted in functional design
  - Flood model verification to EIS
  - Comparison of physical parameters
  - In channel hydraulic assessment results
  - Stream power and sediment transport results
  - Flood impacts
  - Habitat and Vegetation
  - Public road crossing in diversion hydraulics

Regulations Consulted in Functional Design (SD)

- Outlined main pieces of regulations used in the functional design
- Outlined that the design is based around meeting the final relinquishment outcomes specified in the DNRM guidelines and associated ACARP Guidelines.
- No further information required from DNRM or DEHP in relation to regulations used during the design phase and acceptance that the most applicable legislation, regulation and guidelines have been utilised.

Design Criteria Adopted in Functional Design (SD, BP1)

- Outlined that even though the ACARP 2014 guideline had not yet been fully adopted by DNRM that this one had been used as basis of the functional design. DNRM had acknowledged that this is the one that should be used as most recent.
- No further information DNRM or DEHP in relation to design criteria used during the design phase and acceptance that the most applicable criteria have been utilised.

Flood Model Correlation to EIS (SD, BP1)

- Outlined that an independent hydraulic assessment had been conducted with the function design. Surface water hydrology for the project was undertaken using RORBWin Hydrological model which is an event based hydrological model that applies design or custom rainfall hyetographs to calculate flood hydrographs.

- Tables presented in relation to comparison of derived discharges to the EIS reported peak discharges indicated that the functional design provided good correlation to the EIS reported design flows.
- No further information was required from DNRM or DEHP in relation to flood model correlation to the EIS and acceptance that the model showed close correlation to the EIS.

Comparison of Physical Parameters (SD, BP2)

- During pre-lodgement meeting a discussion was held around the length being 1km shorter than the existing waterway and DEHP wanted to understand the impacts associated with this. After discussion with technical specialists it was noted that:
  - Hydraulic conditions of diversion are similar to existing creek ecosystem
  - Longitudinal grade of diversion is similar to that of existing creek. The diversion maintains the low energy system. It was noted there was a typo in the summary table and that figures were a decimal place out. Anglo American is confirming in these minutes that this is correct and the grade changes from 0.00052 to 0.00065. This minor increase does not impact on the water characteristics of the creek.
  - The diversion will maintain connectivity between upstream and downstream habitats.
  - The designed rehabilitation and monitoring program within the functional report will assist with the likelihood of an aquatic habitat resembling the existing channel. Slopes do not change significantly and there will be connected pathways through the diversion to allow migration of species.
  - The diversion maintains waterway characteristics in accordance with the guidelines despite the marginal reduction in wavelength and curvature.
- No further information was required from DNRM or DEHP in relation to physical parameters of the functional design and acceptance that the diversion physical parameters design meets requirements of the relevant guidelines.

In Channel Hydraulic Assessment (SD, BP1, BP2)

- Outlined that the majority of the length of the diversion compares favourably with the criteria with only isolated exceedances which will be treated during the detailed design phase with engineering control such as rock armour or similar.
- Each of the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events were discussed in relation to velocity, stream power and shear stresses. Regardless of the exceedances, velocity, stream power and shear stresses in the diversion closely resemble those values of the reach to be diverted and up and downstream reaches.
- Technical specialist, Ben Pearson Senior Geomorphologist, provided further justification to support that the hydraulic parameters outlined are in line with the Guidelines in relation to sediment mobilisation and deposition through the reaches and variable aquatic habitat.
- DNRM Scott Stevens had requested further information on the manning's roughness coefficients utilised during the flood modelling. BP1 had outlined that a 0.04 coefficient was used for the in channel assessment and a 0.05 coefficient was utilised for the outerbank assessment. BP1 had outlined that a sensitivity assessment on this

will be completed within the detailed design phase. Scott Stevens had accepted that these figures were suitable for use.

- BP1 had outlined that there was two sections that showed isolated exceedances in the data. One was 500 m down the diversion in a section where the diversion goes through high ground and the other was a place at the intersection to the Barwon Park Road. It was outlined that these exceedances will be addressed during the detailed design phase coupled with the recently completed geotechnical assessment results.
- No further information was required from DNRM or DEHP in relation to in channel hydraulic assessment of the functional design.

Stream Power and Sediment Transport (SD)

- Outlined that the diversion should not significantly alter downstream sediment conveyance from existing conditions as shown through the observations of the model run in comparison to the existing case.
- Summary tables and graphs were presented for the 1 in 2 and 1 in 50 AEP events.
- No further information was required from DNRM or DEHP in relation to stream power and sediment transport of the functional design.

Flood Impacts (SD)

- Provided the flood impact figures for the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events. Each figure outlined insignificant changes in comparison to the existing watercourse. Flood level increases remain within the mining lease boundary for the 1 in 2 AEP events and only 1.2 – 1.7 km past the mining lease boundary for the 1 in 50 and 1 in 100 AEP event. Again minor isolated exceedances in velocities will be addressed in detailed design phase through engineering treatment such as rock armour or similar.
- The mining lease boundaries were difficult to pick up in the figures and will be made clearer in the final functional report which will be submitted with the EA amendment application.
- The figures were a little difficult to understand and BP1 had summarised how the figures were depicted. There were two models completed. One was HEC-RAS model which is only completed within the channel. The second was a TU-FLOW model which is completed for the out of bank model. The figures provided were only showing the TU-FLOW model results and therefore the in-channel results were not shown in the change. This is because there is currently no channel in the existing scenario and therefore there is nothing to compare the developed channel to. Therefore the figures are only representing changes to the existing out of bank scenario. DNRM understood how this was presented and have no other input required into the figures other than a summary about the parameters and models used in the figure production would be beneficial to the reader. Anglo American will ensure this is put into the functional design prior to the submission of the document with the EA amendment application.
- It was outlined that any increases in flood levels upstream are not adversely impacting on habitable dwellings or public infrastructure.
- No further information was required from DNRM or DEHP in relation to flood impacts of the designed creek diversion and levee project.

Habitat and Vegetation (SD, BP2)

- Outlined that the functional design contains more information than a typically provided functional design and a lot of the habitat and vegetation information is almost at detailed design level.
- Outlined that the diversion has been designed to best replicate the existing creek habitat.
- Conceptual habitat and riparian vegetation management plans to meet guideline values have been provided in the functional design
- Candidate species based on site observations and REMP surveys have been included in the functional design
- Diversion monitoring and visual assessment program, vegetation surveys and assessments against final outcomes have also been included in the functional design
- No further information was required from DNRM or DEHP in relation to habitat and vegetation of the designed creek diversion and levee project.

Barwon Park Road Crossing (SD)

- Outlined that the low level crossing is supported from a geomorphologic perspective as it should maintain the low flow sediment conveyance and not inhibit the sediment transport during high flows, which is similar to the existing Barwon Park Road crossing. As a result, there should be minimal observed change, if any, from the existing condition.
- No further information was required from DNRM or DEHP in relation to the proposed Barwon Park Road public road crossing within the creek diversion.

General

- Catchment plans shown to DNRM for all the catchment included in diversion design however there is some minor tributaries that may need to be discussed with the regulators for approval during the detailed design. For example rock chute design or bypass options. DRNM accepted they will be willing to have a look at these and discuss.
- Description of figures and there inputs will be put on the flood impact plots within the functional design for benefit to the reader
- Low flow channel movement – Anglo American, Hatch and Hydrobiology will include a paragraph on what the long term opinion is on how they think the low flow channel will act long term. Will the diversion meander or likely to remain in position given it is a low energy system.
- Discussed the requirement to potentially have a temporary regulated structure south of Barwon park road with no diversion required. DEHP accepted that a design plan would just be submitted as per EA conditions prior to construction.

Meeting Closed: 4:00 pm

DNRM Satisfaction of Design & support of minor amendment (SS)

To close out the action required from the pre-lodgement meeting for the EA amendment application, DEHP have requested that Scott Stevens from Department of Natural Resources and Mines provides his support of the design. Anglo American have included this section in the minutes to be able to receive DNRM support for the project and to outline that the functional design has met all applicable legislation, regulations and guidelines and that the change of the diversion and levee alignment in comparison to the EIS is insignificant warranting a minor amendment from that presented in the original EIS.

I, Scott Stevens from Department of Natural Resources and Mines, have been taken by Anglo American through the potential impacts associated with the change in the alignment of the diversion and believe the change to be insignificant in relation to the original EIS alignment. The diversion functional design meets all applicable regulations, legislation and guidelines at the time of the meeting and I therefore give my support that the change be assessed as a minor EA amendment in relation to surface water hydrology and geomorphology

Name: Scott Stevens Position: Signature: Date: / / 2016

Acceptance of Meeting Minutes

Department of Environment and Heritage Protection Representative
Name: Position: Signature: Date: / / 2016

Department of Natural Resources and Mines Representative
Name: Position: Signature: Date: / / 2016

MEETING MINUTES

Foxleigh Plains Cockatoo Creek Diversion & Levee

Technical Review of Functional Design
DNRM and DEHP Stakeholder Engagement Meeting

2 March 2016
03:00 pm to 04:00 pm
Author: Skye Davis

Present:

Company	Attendance
Anglo American	Skye Davis (SD)
Technical Specialist for Anglo American	Ben Phillips (Senior Water Engineer Hatch, BP1)
	Ben Pearson (Senior Geomorphologist Hydrobiology, BP2)
Department of Environment & Heritage Protection (DEHP)	Jacob Toe (JT)
	Liz Clarke (LC)
	Ashley Tones (AT)
Department of Natural Resources and Mines (DNRM)	Scott Stevens (SS)
	Sarah Hellman (SH)

Apologies: Jeremy Marston (Anglo American, JM), Jason Fittler (Anglo American, JF)

Meeting Open: 03:00 pm

Purpose of the meeting:
The purpose of the meeting was to attempt to close out an action from the pre-lodgement meeting surrounding the EA amendment application for the Foxleigh Plains Creek Diversion and Levee Project which involved ensuring Department of Natural Resources and Mines (DNRM) are satisfied with the functional design and design intent of the diversion prior to lodgement of the EA amendment application to Department of Environment and Heritage Protection (DEHP).

Resources provided prior to the meeting:

- Full Draft Functional Design Report written by Hatch and Hydrobiology of the Cockatoo Creek Diversion and Levee for the Foxleigh Plains Project
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Design criteria adopted in functional design	Agreed that even though the DNRM 2014 guidelines had not yet been adopted by DNRM that they are the correct design criteria to be used given they are more recent and a more detailed assessment of the diversion performance from the 2002 criteria. No Concerns Raised	Acknowledgement that correct criteria had been adopted in the functional design No Concerns Raised
Flood Model	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised
Comparison of Physical Parameters	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised.
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Stream Power & Sediment Transport	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements with no concerns raised.	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements with no concerns raised.
Flood Impacts	DNRM acknowledged that the project is low risk and is in similar design characteristics to other diversions in the Bowen Basin. No concerns raised and therefore acknowledgement impacts were similar to the EIS.	No concerns raised and therefore acknowledgement impacts were similar to the EIS.
Habitat and Vegetation	Acknowledgement that the functional design contains more information than normally presented in a functional design document and that the watercourse characterisation guideline had been met. Monitoring programs and vegetation planting programs presented have met relevant guidelines for protection of habitat values. No concerns raised.	Acknowledgement that monitoring programs and vegetation planting programs presented has met relevant guidelines for protection of habitat values. No concerns raised.

Introduction Commentary (SD)

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  - Habitat and Vegetation
  - Public road crossing in diversion hydraulics

Regulations Consulted in Functional Design (SD)

- Outlined main pieces of regulations used in the functional design
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  - Longitudinal grade of diversion is similar to that of existing creek. The diversion maintains the low energy system. It was noted there was a typo in the summary table and that figures were a decimal place out. Anglo American is confirming in these minutes that this is correct and the grade changes from 0.00052 to 0.00065. This minor increase does not impact on the water characteristics of the creek.
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  - The designed rehabilitation and monitoring program within the functional report will assist with the likelihood of an aquatic habitat resembling the existing channel. Slopes do not change significantly and there will be connected pathways through the diversion to allow migration of species.
  - The diversion maintains waterway characteristics in accordance with the guidelines despite the marginal reduction in wavelength and curvature.
- No further information was required from DNRM or DEHP in relation to physical parameters of the functional design and acceptance that the diversion physical parameters design meets requirements of the relevant guidelines.

In Channel Hydraulic Assessment (SD, BP1, BP2)

- Outlined that the majority of the length of the diversion compares favourably with the criteria with only isolated exceedances which will be treated during the detailed design phase with engineering control such as rock armour or similar.
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will be completed within the detailed design phase. Scott Stevens had accepted that these figures were suitable for use.

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- No further information was required from DNRM or DEHP in relation to in channel hydraulic assessment of the functional design.

Stream Power and Sediment Transport (SD)

- Outlined that the diversion should not significantly alter downstream sediment conveyance from existing conditions as shown through the observations of the model run in comparison to the existing case.
- Summary tables and graphs were presented for the 1 in 2 and 1 in 50 AEP events.
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Flood Impacts (SD)

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- It was outlined that any increases in flood levels upstream are not adversely impacting on habitable dwellings or public infrastructure.
- No further information was required from DNRM or DEHP in relation to flood impacts of the designed creek diversion and levee project.

Habitat and Vegetation (SD, BP2)

- Outlined that the functional design contains more information than a typically provided functional design and a lot of the habitat and vegetation information is almost at detailed design level.
- Outlined that the diversion has been designed to best replicate the existing creek habitat.
- Conceptual habitat and riparian vegetation management plans to meet guideline values have been provided in the functional design
- Candidate species based on site observations and REMP surveys have been included in the functional design
- Diversion monitoring and visual assessment program, vegetation surveys and assessments against final outcomes have also been included in the functional design
- No further information was required from DNRM or DEHP in relation to habitat and vegetation of the designed creek diversion and levee project.

Barwon Park Road Crossing (SD)

- Outlined that the low level crossing is supported from a geomorphologic perspective as it should maintain the low flow sediment conveyance and not inhibit the sediment transport during high flows, which is similar to the existing Barwon Park Road crossing. As a result, there should be minimal observed change, if any, from the existing condition.
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General

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- Description of figures and there inputs will be put on the flood impact plots within the functional design for benefit to the reader
- Low flow channel movement – Anglo American, Hatch and Hydrobiology will include a paragraph on what the long term opinion is on how they think the low flow channel will act long term. Will the diversion meander or likely to remain in position given it is a low energy system.
- Discussed the requirement to potentially have a temporary regulated structure south of Barwon park road with no diversion required. DEHP accepted that a design plan would just be submitted as per EA conditions prior to construction.

Meeting Closed: 4:00 pm

DNRM Satisfaction of Design & support of minor amendment (SS)

To close out the action required from the pre-lodgement meeting for the EA amendment application, DEHP have requested that Scott Stevens from Department of Natural Resources and Mines provides his support of the design. Anglo American have included this section in the minutes to be able to receive DNRM support for the project and to outline that the functional design has met all applicable legislation, regulations and guidelines and that the change of the diversion and levee alignment in comparison to the EIS is insignificant warranting a minor amendment from that presented in the original EIS.

I, Scott Stevens from Department of Natural Resources and Mines, have been taken by Anglo American through the potential impacts associated with the change in the alignment of the diversion and believe the change to be insignificant in relation to the original EIS alignment. The diversion functional design meets all applicable regulations, legislation and guidelines at the time of the meeting and I therefore give my support that the change be assessed as a minor EA amendment in relation to surface water hydrology and geomorphology

Name: Scott Stevens Position: Signature: Date: / / 2016

Acceptance of Meeting Minutes

Department of Environment and Heritage Protection Representative
Name: Position: Signature: Date: / / 2016

Department of Natural Resources and Mines Representative
Name: Position: Signature: Date: / / 2016

From: Davis, Skye [skye.davis@angloamerican.com]
Sent: Thursday, 10 March 2016 2:48 PM
To: CLARKE Liz; TOE Jacob; TONES Ashley
CC: Marston, Jeremy; Fittler, Jason; Ben Pearson (Ben.Pearson@hydrobiology.biz); Phillips, Ben (BPhillips@hatch.com.au)
Subject: Meeting Minutes 2 March 2016 : Foxleigh Plains Diversion Technical Review
Attachments: Meeting Minutes Diversion Functional Design (DEHP) - 2 March 2016.doc; Meeting Minutes Diversion Design Technical Review 2 March 2016_V2.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi All

Please find attached Meeting Minutes from 2 March 2016 in relation to the Foxleigh Plains Creek Diversion and Levee Technical review held in Emerald with DNRM, DEHP, Anglo American, Hatch and Hydrobiology.

Scott Stevens from DNRM has reviewed the meeting minutes and accepted them on the 10/03/2016.

Can DEHP have a read through the meeting minutes and either make changes or accept them by signing the meeting minutes.

Thankyou for your time it was a very beneficial meeting for us.

Kind Regards,

Skye Davis
Environmental Engineering Superintendent
B. Eng, IEAust eChartered

German Creek,Lake Lindsay & Foxleigh Operations
D (07) 4985 0559 (Lake Lindsay) M) Personal in

MEETING MINUTES

Foxleigh Plains Cockatoo Creek Diversion & Levee

Technical Review of Functional Design
DNRM and DEHP Stakeholder Engagement Meeting

2 March 2016
03:00 pm to 04:00 pm
Author: Skye Davis

Present:

Company	Attendance
Anglo American	Skye Davis (SD)
Technical Specialist for Anglo American	Ben Phillips (Senior Water Engineer Hatch, BP1)
	Ben Pearson (Senior Geomorphologist Hydrobiology, BP2)
Department of Environment & Heritage Protection (DEHP)	Jacob Toe (JT)
	Liz Clarke (LC)
	Ashley Tones (AT)
Department of Natural Resources and Mines (DNRM)	Scott Stevens (SS)
	Sara Hillman (SH)

Apologies: Jeremy Marston (Anglo American, JM), Jason Fittler (Anglo American, JF)

Meeting Open: 03:00 pm

Purpose of the meeting:
The purpose of the meeting was to attempt to close out an action from the pre-lodgement meeting surrounding the EA amendment application for the Foxleigh Plains Creek Diversion and Levee Project which involved ensuring Department of Natural Resources and Mines (DNRM) are satisfied with the functional design and design intent of the diversion prior to lodgement of the EA amendment application to Department of Environment and Heritage Protection (DEHP).

Resources provided prior to the meeting:

- Full Draft Functional Design Report written by Hatch and Hydrobiology of the Cockatoo Creek Diversion and Levee for the Foxleigh Plains Project
- Summary slide pack for this meeting which summarised the full functional design for discussion at this meeting
- EA Amendment Application pre-lodgement meeting slide presentation presented on 16 March 2016 to DEHP in Emerald. This was provided to ensure DNRM had the same information as DEHP.

Executive Summary

Meeting Agenda Item	DNRM Summary	DEHP Summary
Regulations consulted in functional design	Acknowledgement that correct guidelines used in functional design No Concerns Raised	Acknowledgement that correct regulations, legislation and guidelines used in functional design No Concerns Raised
Design criteria adopted in functional design	Agreed that even though the DNRM 2014 guidelines had not yet been adopted by DNRM that they are the correct design criteria to be used given they are more more suitable to the type of diversion proposed (alluvial) and therefore more relevant in detailed design then the diversion performance from the 2002 criteria. No Concerns Raised	Acknowledgement that correct criteria had been adopted in the functional design No Concerns Raised
Flood Model	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised
Comparison of Physical Parameters	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised.
In Channel Hydraulic Assessment	Acknowledgement that the in channel hydraulic assessment meets the required guidelines. DNRM acknowledged that the project is low risk and is in similar design characteristics to other diversions in the Bowen Basin. This comment was made in relation to the diversion itself in context with the hydraulic/energy conditions and the ability to be able to replicate those of the existing watercourse. It is noted that the hydraulic conditions within the diversion are higher on average than the existing watercourse and that to maintain long-term stability, vegetation will play an important role.Vegetation management and monitoring program is included within the functional report and will be addressed further in the detailed design.	Acknowledgement that the in channel hydraulic assessment meets the required guidelines No Concerns Raised

Stream Power & Sediment Transport	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements. DNRM raised the issue about localised impacts and transition zones. In addition, it was highlighted that one of the main issues with existing diversions in general is in interception with other drainage features and how this may impact on the diversion however this will be further addressed in the detailed design.	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements with no concerns raised.
Flood Impacts	DNRM were shown maps showing change to the existing watercourse and showing marginal increases/decreases in water levels but primarily the impacts were within the mining lease and showed insignificant changes off mining lease in comparison to existing watercourse.	No concerns raised and therefore acknowledgement impacts were similar to the EIS.
Habitat and Vegetation	Acknowledgement that the functional design contains more information than normally presented in a functional design document. No concerns raised.	Acknowledgement that monitoring programs and vegetation planting programs presented has met relevant guidelines for protection of habitat values. No concerns raised.

Introduction Commentary (SD)

- Introduction of technical specialists from Hatch and Hydrobiology who have written the functional design. Ben Phillips from Hatch is a Senior Water Engineer and Ben Pearson from Hydrobiology is a Senior Geomorphologist.
- Introduced the members of DNRM and DEHP to these technical specialists.
- Outlined purpose of the meeting to close out action from pre-lodgement meeting and provided copies of the slide pack presentation that provided an executive summary of the full draft functional design. In particular, it was noted that this meeting was to ensure that DNRM are satisfied that the design and design intent
- DNRM and DEHP had in front of them the full copy of the functional design to flick over to if required when going through the executive summary presentation.
- The agenda included the following topics to be discussed:
  - Regulations consulted in functional design
  - Design criteria adopted in functional design
  - Flood model verification to EIS
  - Comparison of physical parameters
  - In channel hydraulic assessment results
  - Stream power and sediment transport results
  - Flood impacts
  - Habitat and Vegetation
  - Public road crossing in diversion hydraulics

Regulations Consulted in Functional Design (SD)

- Outlined main pieces of regulations used in the functional design
- Outlined that the design is based around meeting the final relinquishment outcomes specified in the DNRM guidelines and associated ACARP Guidelines.
- No further information required from DNRM or DEHP in relation to Guidelines used during the design phase.

Design Criteria Adopted in Functional Design (SD, BP1)

- Outlined that even though the ACARP 2014 guideline had not yet been fully adopted by DNRM that this one had been used as basis of the functional design. DNRM had acknowledged that this is the one that should be used as most applicable to the proposed diversion.
- No further information DNRM or DEHP in relation to design criteria used during the design phase and acceptance that the most applicable criteria have been utilised.

Flood Model Correlation to EIS (SD, BP1)

- Outlined that an independent hydraulic assessment had been conducted with the function design. Surface water hydrology for the project was undertaken using RORBWin Hydrological model which is an event based hydrological model that applies design or custom rainfall hyetographs to calculate flood hydrographs.
- Tables presented in relation to comparison of derived discharges to the EIS reported peak discharges indicated that the functional design provided good correlation to the EIS reported design flows.

- DNRM were shown maps showing change to the existing watercourse and showing marginal increases/decreases in water levels but primarily the impacts were within the mining lease and showed insignificant changes off mining lease in comparison to existing watercourse.

Comparison of Physical Parameters (SD, BP2)

- During pre-lodgement meeting a discussion was held around the length being 1km shorter than the existing waterway and DEHP wanted to understand the impacts associated with this. After discussion with technical specialists it was noted that:
  - Hydraulic conditions of diversion are similar to existing creek ecosystem
  - Longitudinal grade of diversion is similar to that of existing creek. The diversion maintains the low energy system. It was noted there was a typo in the summary table and that figures were a decimal place out. Anglo American is confirming in these minutes that this is correct and the grade changes from 0.00052 to 0.00065. This minor decrease does not impact on the water characteristics of the creek.
  - The diversion will maintain connectivity between upstream and downstream habitats.
  - The designed rehabilitation and monitoring program within the functional report will assist with the likelihood of an aquatic habitat resembling the existing channel. Slopes do not change significantly and there will be connected pathways through the diversion to allow migration of species.
  - The diversion maintains waterway characteristics in accordance with the guidelines despite the marginal reduction in wavelength and curvature.
- No further information was required from DNRM or DEHP in relation to physical parameters of the functional design and acceptance that the diversion physical parameters design meets requirements of the relevant guidelines.

In Channel Hydraulic Assessment (SD, BP1, BP2)

- Outlined that the majority of the length of the diversion compares favourably with the criteria with only isolated exceedances which will be treated during the detailed design phase with engineering control such as rock armour or similar.
- Each of the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events were discussed in relation to velocity, stream power and shear stresses. Regardless of the exceedances, velocity, stream power and shear stresses in the diversion closely resemble those values of the reach to be diverted and up and downstream reaches. On average the values are marginally higher however the diversion maintains waterway characteristics.
- Technical specialist, Ben Pearson Senior Geomorphologist, provided further justification to support that the hydraulic parameters outlined are in line with the Guidelines in relation to sediment mobilisation and deposition through the reaches and variable aquatic habitat.
- DNRM Scott Stevens had requested further information on the manning's roughness coefficients utilised during the flood modelling. BP1 had outlined that a 0.04 coefficient was used for the in channel assessment and a 0.05 coefficient was utilised for the outerbank assessment. BP1 had outlined that a sensitivity assessment on this

will be completed within the detailed design phase. Scott Stevens had accepted that these figures were appropriate if they reflected the existing roughness parameters.

- BP1 had outlined that there was two sections that showed isolated exceedances in the data. One was 500 m down the diversion in a section where the diversion goes through high ground and the other was a place at the intersection to the Barwon Park Road. It was outlined that these exceedances will be addressed during the detailed design phase coupled with the recently completed geotechnical assessment results.
- No further information was required from DNRM or DEHP in relation to in channel hydraulic assessment of the functional design.

Stream Power and Sediment Transport (SD)

- Outlined that the diversion should not significantly alter downstream sediment conveyance from existing conditions as shown through the observations of the model run in comparison to the existing case.
- Summary tables and graphs were presented for the 1 in 2 and 1 in 50 AEP events.
- No further information was required from DNRM or DEHP in relation to stream power and sediment transport of the functional design.

Flood Impacts (SD)

- Provided the flood impact figures for the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events. Each figure outlined insignificant changes in comparison to the existing watercourse. Flood level increases remain within the mining lease boundary for the 1 in 2 AEP events and only 1.2 – 1.7 km past the mining lease boundary for the 1 in 50 and 1 in 100 AEP event. Again minor isolated exceedances in velocities will be addressed in detailed design phase through engineering treatment such as rock armour or similar.
- The mining lease boundaries were difficult to pick up in the figures and will be made clearer in the final functional report which will be submitted with the EA amendment application.
- The figures were a little difficult to understand and BP1 had summarised how the figures were depicted. There were two models completed. One was HEC-RAS model which is only completed within the channel. The second was a TU-FLOW model which is completed for the out of bank model. The figures provided were only showing the TU-FLOW model results and therefore the in-channel results were not shown in the change. This is because there is currently no channel in the existing scenario and therefore there is nothing to compare the developed channel to. Therefore the figures are only representing changes to the existing out of bank scenario. DNRM understood how this was presented and have no other input required into the figures other than a summary about the parameters and models used in the figure production would be beneficial to the reader. Anglo American will ensure this is put into the functional design prior to the submission of the document with the EA amendment application.
- It was outlined that any increases in flood levels upstream are not adversely impacting on habitable dwellings or public infrastructure.
- No further information was required from DNRM or DEHP in relation to flood impacts of the designed creek diversion and levee project.

Habitat and Vegetation (SD, BP2)

- Outlined that the functional design contains more information than a typically provided functional design and a lot of the habitat and vegetation information is almost at detailed design level.
- Outlined that the diversion has been designed to best replicate the existing creek habitat.
- Conceptual habitat and riparian vegetation management plans to meet guideline values have been provided in the functional design
- Candidate species based on site observations and REMP surveys have been included in the functional design
- Diversion monitoring and visual assessment program, vegetation surveys and assessments against final outcomes have also been included in the functional design
- No further information was required from DNRM or DEHP in relation to habitat and vegetation of the designed creek diversion and levee project.

Barwon Park Road Crossing (SD)

- Outlined that the low level crossing is supported from a geomorphologic perspective as it should maintain the low flow sediment conveyance and not inhibit the sediment transport during high flows, which is similar to the existing Barwon Park Road crossing. As a result, there should be minimal observed change, if any, from the existing condition.
- No further information was required from DNRM or DEHP in relation to the proposed Barwon Park Road public road crossing within the creek diversion.

General

- Catchment plans shown to DNRM for all the catchment included in diversion design however there is some minor tributaries that may need to be discussed with the regulators for approval during the detailed design. For example rock chute design or bypass options. DRNM accepted they will be willing to have a look at these and discuss.
- Description of figures and there inputs will be put on the flood impact plots within the functional design for benefit to the reader
- Low flow channel movement – Anglo American, Hatch and Hydrobiology will include a paragraph on what the long term opinion is on how they think the low flow channel will act long term. Will the diversion meander or likely to remain in position given it is a low energy system.
- Discussed the requirement to potentially have a temporary regulated structure south of Barwon park road with no diversion required. DEHP accepted that a design plan would just be submitted as per EA conditions prior to construction.

Meeting Closed: 4:00 pm

Conclusion

To close out the action required from the pre-lodgement meeting for the EA amendment application, DNRM did provide preliminary advice at the time of the meeting that the information presented by Anglo American, constitutes the same level of information that would normally be required under a water licence application process prior to an assessment by DNRM. DNRM acknowledges that the conceptual diversion design report refers to the current guidelines for watercourse diversions and that the development of a detailed design plan will address specific matters of interest that require further more detailed analysis.

The Department of Natural Resources and Mines was present at the meeting with Anglo American and DEHP representatives to discuss the proposed diversion of Cockatoo Creek. The meeting notes provided are a reflection of the discussions between all attendees based on the information provided during the presentation by Anglo American and the accompanying functional design report.

Acceptance of Meeting Minutes

Department of Environment and Heritage Protection Representative
Name: Position: Signature: Date: / / 2016

MEETING MINUTES

Foxleigh Plains Cockatoo Creek Diversion & Levee

Technical Review of Functional Design
DNRM and DEHP Stakeholder Engagement Meeting

2 March 2016
03:00 pm to 04:00 pm
Author: Skye Davis

Present:

Company	Attendance
Anglo American	Skye Davis (SD)
Technical Specialist for Anglo American	Ben Phillips (Senior Water Engineer Hatch, BP1)
	Ben Pearson (Senior Geomorphologist Hydrobiology, BP2)
Department of Environment & Heritage Protection (DEHP)	Jacob Toe (JT)
	Liz Clarke (LC)
	Ashley Tones (AT)
Department of Natural Resources and Mines (DNRM)	Scott Stevens (SS)
	Sara Hillman (SH)

Apologies: Jeremy Marston (Anglo American, JM), Jason Fittler (Anglo American, JF)

Meeting Open: 03:00 pm

Purpose of the meeting:
The purpose of the meeting was to attempt to close out an action from the pre-lodgement meeting surrounding the EA amendment application for the Foxleigh Plains Creek Diversion and Levee Project which involved ensuring Department of Natural Resources and Mines (DNRM) are satisfied with the functional design and design intent of the diversion prior to lodgement of the EA amendment application to Department of Environment and Heritage Protection (DEHP).

Resources provided prior to the meeting:

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Flood Model	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised
Comparison of Physical Parameters	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised.
In Channel Hydraulic Assessment	Acknowledgement that the in channel hydraulic assessment meets the required guidelines. DNRM acknowledged that the project is low risk and is in similar design characteristics to other diversions in the Bowen Basin. This comment was made in relation to the diversion itself in context with the hydraulic/energy conditions and the ability to be able to replicate those of the existing watercourse. It is noted that the hydraulic conditions within the diversion are higher on average than the existing watercourse and that to maintain long-term stability, vegetation will play an important role.Vegetation management and monitoring program is included within the functional report and will be addressed further in the detailed design.	Acknowledgement that the in channel hydraulic assessment meets the required guidelines No Concerns Raised

Stream Power & Sediment Transport	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements. DNRM raised the issue about localised impacts and transition zones. In addition, it was highlighted that one of the main issues with existing diversions in general is in interception with other drainage features and how this may impact on the diversion however this will be further addressed in the detailed design.	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements with no concerns raised.
Flood Impacts	DNRM were shown maps showing change to the existing watercourse and showing marginal increases/decreases in water levels but primarily the impacts were within the mining lease and showed insignificant changes off mining lease in comparison to existing watercourse.	No concerns raised and therefore acknowledgement impacts were similar to the EIS.
Habitat and Vegetation	Acknowledgement that the functional design contains more information than normally presented in a functional design document. No concerns raised.	Acknowledgement that monitoring programs and vegetation planting programs presented has met relevant guidelines for protection of habitat values. No concerns raised.

Introduction Commentary (SD)

- Introduction of technical specialists from Hatch and Hydrobiology who have written the functional design. Ben Phillips from Hatch is a Senior Water Engineer and Ben Pearson from Hydrobiology is a Senior Geomorphologist.
- Introduced the members of DNRM and DEHP to these technical specialists.
- Outlined purpose of the meeting to close out action from pre-lodgement meeting and provided copies of the slide pack presentation that provided an executive summary of the full draft functional design. In particular, it was noted that this meeting was to ensure that DNRM are satisfied that the design and design intent
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  - Flood impacts
  - Habitat and Vegetation
  - Public road crossing in diversion hydraulics

Regulations Consulted in Functional Design (SD)

- Outlined main pieces of regulations used in the functional design
- Outlined that the design is based around meeting the final relinquishment outcomes specified in the DNRM guidelines and associated ACARP Guidelines.
- No further information required from DNRM or DEHP in relation to Guidelines used during the design phase.

Design Criteria Adopted in Functional Design (SD, BP1)

- Outlined that even though the ACARP 2014 guideline had not yet been fully adopted by DNRM that this one had been used as basis of the functional design. DNRM had acknowledged that this is the one that should be used as most applicable to the proposed diversion.
- No further information DNRM or DEHP in relation to design criteria used during the design phase and acceptance that the most applicable criteria have been utilised.

Flood Model Correlation to EIS (SD, BP1)

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- DNRM were shown maps showing change to the existing watercourse and showing marginal increases/decreases in water levels but primarily the impacts were within the mining lease and showed insignificant changes off mining lease in comparison to existing watercourse.

Comparison of Physical Parameters (SD, BP2)

- During pre-lodgement meeting a discussion was held around the length being 1km shorter than the existing waterway and DEHP wanted to understand the impacts associated with this. After discussion with technical specialists it was noted that:
  - Hydraulic conditions of diversion are similar to existing creek ecosystem
  - Longitudinal grade of diversion is similar to that of existing creek. The diversion maintains the low energy system. It was noted there was a typo in the summary table and that figures were a decimal place out. Anglo American is confirming in these minutes that this is correct and the grade changes from 0.00052 to 0.00065. This minor decrease does not impact on the water characteristics of the creek.
  - The diversion will maintain connectivity between upstream and downstream habitats.
  - The designed rehabilitation and monitoring program within the functional report will assist with the likelihood of an aquatic habitat resembling the existing channel. Slopes do not change significantly and there will be connected pathways through the diversion to allow migration of species.
  - The diversion maintains waterway characteristics in accordance with the guidelines despite the marginal reduction in wavelength and curvature.
- No further information was required from DNRM or DEHP in relation to physical parameters of the functional design and acceptance that the diversion physical parameters design meets requirements of the relevant guidelines.

In Channel Hydraulic Assessment (SD, BP1, BP2)

- Outlined that the majority of the length of the diversion compares favourably with the criteria with only isolated exceedances which will be treated during the detailed design phase with engineering control such as rock armour or similar.
- Each of the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events were discussed in relation to velocity, stream power and shear stresses. Regardless of the exceedances, velocity, stream power and shear stresses in the diversion closely resemble those values of the reach to be diverted and up and downstream reaches. On average the values are marginally higher however the diversion maintains waterway characteristics.
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- DNRM Scott Stevens had requested further information on the manning's roughness coefficients utilised during the flood modelling. BP1 had outlined that a 0.04 coefficient was used for the in channel assessment and a 0.05 coefficient was utilised for the outerbank assessment. BP1 had outlined that a sensitivity assessment on this

will be completed within the detailed design phase. Scott Stevens had accepted that these figures were appropriate if they reflected the existing roughness parameters.

- BP1 had outlined that there was two sections that showed isolated exceedances in the data. One was 500 m down the diversion in a section where the diversion goes through high ground and the other was a place at the intersection to the Barwon Park Road. It was outlined that these exceedances will be addressed during the detailed design phase coupled with the recently completed geotechnical assessment results.
- No further information was required from DNRM or DEHP in relation to in channel hydraulic assessment of the functional design.

Stream Power and Sediment Transport (SD)

- Outlined that the diversion should not significantly alter downstream sediment conveyance from existing conditions as shown through the observations of the model run in comparison to the existing case.
- Summary tables and graphs were presented for the 1 in 2 and 1 in 50 AEP events.
- No further information was required from DNRM or DEHP in relation to stream power and sediment transport of the functional design.

Flood Impacts (SD)

- Provided the flood impact figures for the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events. Each figure outlined insignificant changes in comparison to the existing watercourse. Flood level increases remain within the mining lease boundary for the 1 in 2 AEP events and only 1.2 – 1.7 km past the mining lease boundary for the 1 in 50 and 1 in 100 AEP event. Again minor isolated exceedances in velocities will be addressed in detailed design phase through engineering treatment such as rock armour or similar.
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- It was outlined that any increases in flood levels upstream are not adversely impacting on habitable dwellings or public infrastructure.
- No further information was required from DNRM or DEHP in relation to flood impacts of the designed creek diversion and levee project.

Habitat and Vegetation (SD, BP2)

- Outlined that the functional design contains more information than a typically provided functional design and a lot of the habitat and vegetation information is almost at detailed design level.
- Outlined that the diversion has been designed to best replicate the existing creek habitat.
- Conceptual habitat and riparian vegetation management plans to meet guideline values have been provided in the functional design
- Candidate species based on site observations and REMP surveys have been included in the functional design
- Diversion monitoring and visual assessment program, vegetation surveys and assessments against final outcomes have also been included in the functional design
- No further information was required from DNRM or DEHP in relation to habitat and vegetation of the designed creek diversion and levee project.

Barwon Park Road Crossing (SD)

- Outlined that the low level crossing is supported from a geomorphologic perspective as it should maintain the low flow sediment conveyance and not inhibit the sediment transport during high flows, which is similar to the existing Barwon Park Road crossing. As a result, there should be minimal observed change, if any, from the existing condition.
- No further information was required from DNRM or DEHP in relation to the proposed Barwon Park Road public road crossing within the creek diversion.

General

- Catchment plans shown to DNRM for all the catchment included in diversion design however there is some minor tributaries that may need to be discussed with the regulators for approval during the detailed design. For example rock chute design or bypass options. DRNM accepted they will be willing to have a look at these and discuss.
- Description of figures and there inputs will be put on the flood impact plots within the functional design for benefit to the reader
- Low flow channel movement – Anglo American, Hatch and Hydrobiology will include a paragraph on what the long term opinion is on how they think the low flow channel will act long term. Will the diversion meander or likely to remain in position given it is a low energy system.
- Discussed the requirement to potentially have a temporary regulated structure south of Barwon park road with no diversion required. DEHP accepted that a design plan would just be submitted as per EA conditions prior to construction.

Meeting Closed: 4:00 pm

Conclusion

To close out the action required from the pre-lodgement meeting for the EA amendment application, DNRM did provide preliminary advice at the time of the meeting that the information presented by Anglo American, constitutes the same level of information that would normally be required under a water licence application process prior to an assessment by DNRM. DNRM acknowledges that the conceptual diversion design report refers to the current guidelines for watercourse diversions and that the development of a detailed design plan will address specific matters of interest that require further more detailed analysis.

The Department of Natural Resources and Mines was present at the meeting with Anglo American and DEHP representatives to discuss the proposed diversion of Cockatoo Creek. The meeting notes provided are a reflection of the discussions between all attendees based on the information provided during the presentation by Anglo American and the accompanying functional design report.

Acceptance of Meeting Minutes

Department of Environment and Heritage Protection Representative
Name: Position: Signature: Date: / / 2016

From: CLARKE Liz [Liz.Clarke@ehp.qld.gov.au]
Sent: Thursday, 17 March 2016 3:12 PM
To: 'Davis, Skye'
CC: Marston, Jeremy; Fittler, Jason; Ben Pearson (Ben.Pearson@hydrobiology.biz); Phillips, Ben (BPhillips@hatch.com.au); TONES Ashley; TOE Jacob; STEVENS Scott
Subject: RE: Meeting Minutes 2 March 2016 : Foxleigh Plains Diversion Technical Review
Attachments: Meeting Minutes Diversion Functional Design (DEHP) - 2 March 2016_EHP Edits.doc; Meeting Minutes Diversion Functional Design (DEHP) - 2 March 2016_EHP Edits.pdf

Hi Skye,

Thanks for sending the meeting minutes through. I have made a few changes, which are shown in tracked changes in the attached word document. I have also attached a signed copy of this.

The changes to the minutes primarily consist of deleting references stating that EHP provided agreements on the functional design and design criteria. While EHP representatives did not state that there were any concerns, this does not mean that EHP provided agreements on the design reports. As discussed during the meeting, EHP is primarily relying on technical advice from DNRM on the analysis of these reports and plans and will apply / consider DNRM's technical advice during the assessment of the EA amendment.

I have also removed references to statements regarding EHP not requiring further information. As the meeting was primarily in regards to the functional design of the watercourse and not about the section 226 requirements of the EP Act for amendment applications (and as EHP has not seen a draft of the application), EHP cannot advise that all information requirements have been met. The advice provided by EHP during the meeting was indicative only based on the information provided during both pre-lodgement meetings that EHP has attended.

Kind regards

Liz Clarke
Team Leader (Assessment)
Business Centre (Coal) | Coal and Central Queensland Compliance
Department of Environment and Heritage Protection

P 07 4987 9386
99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

I acknowledge the Traditional Owners and custodians of the land I work on as the first people of this country.

From: Davis, Skye [mailto:skye.davis@angloamerican.com]
Sent: Thursday, 10 March 2016 2:48 PM
To: CLARKE Liz <Liz.Clarke@ehp.qld.gov.au>; TOE Jacob <Jacob.Toe@ehp.qld.gov.au>; TONES Ashley <Ashley.Tones@ehp.qld.gov.au>
Cc: Marston, Jeremy <jeremy.marston@angloamerican.com>; Fittler, Jason <jason.fittler@angloamerican.com>; Ben Pearson (Ben.Pearson@hydrobiology.biz) <Ben.Pearson@hydrobiology.biz>; Phillips, Ben (BPhillips@hatch.com.au)

<BPhillips@hatch.com.au>
Subject: Meeting Minutes 2 March 2016 : Foxleigh Plains Diversion Technical Review

Hi All

Please find attached Meeting Minutes from 2 March 2016 in relation to the Foxleigh Plains Creek Diversion and Levee Technical review held in Emerald with DNRM, DEHP, Anglo American, Hatch and Hydrobiology.

Scott Stevens from DNRM has reviewed the meeting minutes and accepted them on the 10/03/2016.

Can DEHP have a read through the meeting minutes and either make changes or accept them by signing the meeting minutes.

Thankyou for your time it was a very beneficial meeting for us.

Kind Regards,

Skye Davis
Environmental Engineering Superintendent
B. Eng, IEAust eChartered

German Creek,Lake Lindsay & Foxleigh Operations
D (07) 4985 0559 (Lake Lindsay) M(s) Personal in
Please consider the environment before printing my email
I acknowledge the Traditional Owners and custodians of the land I work on as the first people of this country

MEETING MINUTES

Foxleigh Plains Cockatoo Creek Diversion & Levee

Technical Review of Functional Design
DNRM and DEHP Stakeholder Engagement Meeting

2 March 2016
03:00 pm to 04:00 pm
Author: Skye Davis

Present:

Company	Attendance
Anglo American	Skye Davis (SD)
Technical Specialist for Anglo American	Ben Phillips (Senior Water Engineer Hatch, BP1)
	Ben Pearson (Senior Geomorphologist Hydrobiology, BP2)
Department of Environment & Heritage Protection (DEHP)	Jacob Toe (JT)
	Liz Clarke (LC)
	Ashley Tones (AT)
Department of Natural Resources and Mines (DNRM)	Scott Stevens (SS)
	Sara Hillman (SH)

Apologies: Jeremy Marston (Anglo American, JM), Jason Fittler (Anglo American, JF)

Meeting Open: 03:00 pm

Purpose of the meeting:
The purpose of the meeting was to attempt to close out an action from the pre-lodgement meeting surrounding the EA amendment application for the Foxleigh Plains Creek Diversion and Levee Project which involved ensuring Department of Natural Resources and Mines (DNRM) are satisfied with the functional design and design intent of the diversion prior to lodgement of the EA amendment application to Department of Environment and Heritage Protection (DEHP).

Resources provided prior to the meeting:

- Full Draft Functional Design Report written by Hatch and Hydrobiology of the Cockatoo Creek Diversion and Levee for the Foxleigh Plains Project
- Summary slide pack for this meeting which summarised the full functional design for discussion at this meeting
- EA Amendment Application pre-lodgement meeting slide presentation presented on 16 March 2016 to DEHP in Emerald. This was provided to ensure DNRM had the same information as DEHP.

Executive Summary

Meeting Agenda Item	DNRM Summary	DEHP Summary
Regulations consulted in functional design	Acknowledgement that correct guidelines used in functional design No Concerns Raised	~~Acknowledgement that correct regulations, legislation and guidelines used in functional design~~ No Concerns Raised.
Design criteria adopted in functional design	Agreed that even though the DNRM 2014 guidelines had not yet been adopted by DNRM that they are the correct design criteria to be used given they are more more suitable to the type of diversion proposed (alluvial) and therefore more relevant in detailed design then the diversion performance from the 2002 criteria. No Concerns Raised	~~Acknowledgement that correct criteria had been adopted in the functional design~~ No Concerns Raised.
Flood Model	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised	~~Acknowledgement that the model adopted in the functional design showed close correlation to the EIS~~ No Concerns Raised.
Comparison of Physical Parameters	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised	~~Acknowledgement that the physical parameters were not significantly different to the existing watercourse.~~ No Concerns Raised.
In Channel Hydraulic Assessment	Acknowledgement that the in channel hydraulic assessment meets the required guidelines. DNRM acknowledged that the project is low risk and is in similar design characteristics to other diversions in the Bowen Basin. This comment was made in relation to the diversion itself in context with the hydraulic/energy conditions and the ability to be able to replicate those of the existing watercourse. It is noted that the hydraulic conditions within the diversion are higher on average than the existing watercourse and that to maintain long-term stability, vegetation will play an important role.Vegetation management and monitoring program is included within the functional report and will be addressed further in the detailed design.	~~Acknowledgement that the in channel hydraulic assessment meets the required guidelines~~ No Concerns Raised.

Stream Power & Sediment Transport	Acknowledgement that the stream power and sediment transport analysis is within guideline requirements. DNRM raised the issue about localised impacts and transition zones. In addition, it was highlighted that one of the main issues with existing diversions in general is in interception with other drainage features and how this may impact on the diversion however this will be further addressed in the detailed design.	~~Acknowledgement that the stream power and sediment transport analysis is within guideline requirements with n~~No concerns raised.
Flood Impacts	DNRM were shown maps showing change to the existing watercourse and showing marginal increases/decreases in water levels but primarily the impacts were within the mining lease and showed insignificant changes off mining lease in comparison to existing watercourse.	No concerns raised~~ and therefore acknowledgement impacts were similar to the EIS.~~.
Habitat and Vegetation	Acknowledgement that the functional design contains more information than normally presented in a functional design document. No concerns raised.	~~Acknowledgement that monitoring programs and vegetation planting programs presented has met relevant guidelines for protection of habitat values.~~ No concerns raised.

Introduction Commentary (SD)

- Introduction of technical specialists from Hatch and Hydrobiology who have written the functional design. Ben Phillips from Hatch is a Senior Water Engineer and Ben Pearson from Hydrobiology is a Senior Geomorphologist.
- Introduced the members of DNRM and DEHP to these technical specialists.
- Outlined purpose of the meeting to close out action from pre-lodgement meeting and provided copies of the slide pack presentation that provided an executive summary of the full draft functional design. In particular, it was noted that this meeting was to ensure that DNRM are satisfied that the design and design intent
- DNRM and DEHP had in front of them the full copy of the functional design to flick over to if required when going through the executive summary presentation.
- The agenda included the following topics to be discussed:
  - Regulations consulted in functional design
  - Design criteria adopted in functional design
  - Flood model verification to EIS
  - Comparison of physical parameters
  - In channel hydraulic assessment results
  - Stream power and sediment transport results
  - Flood impacts
  - Habitat and Vegetation
  - Public road crossing in diversion hydraulics

Regulations Consulted in Functional Design (SD)

- Outlined main pieces of regulations used in the functional design
- Outlined that the design is based around meeting the final relinquishment outcomes specified in the DNRM guidelines and associated ACARP Guidelines.
- No further information required from DNRM ~~or DEHP~~ in relation to Guidelines used during the design phase.

Design Criteria Adopted in Functional Design (SD, BP1)

- Outlined that even though the ACARP 2014 guideline had not yet been fully adopted by DNRM that this one had been used as basis of the functional design. DNRM had acknowledged that this is the one that should be used as most applicable to the proposed diversion.
- No further information DNRM ~~or DEHP~~ in relation to design criteria used during the design phase and acceptance that the most applicable criteria have been utilised.

Flood Model Correlation to EIS (SD, BP1)

- Outlined that an independent hydraulic assessment had been conducted with the function design. Surface water hydrology for the project was undertaken using RORBWin Hydrological model which is an event based hydrological model that applies design or custom rainfall hyetographs to calculate flood hydrographs.
- Tables presented in relation to comparison of derived discharges to the EIS reported peak discharges indicated that the functional design provided good correlation to the EIS reported design flows.

- DNRM were shown maps showing change to the existing watercourse and showing marginal increases/decreases in water levels but primarily the impacts were within the mining lease and showed insignificant changes off mining lease in comparison to existing watercourse.

Comparison of Physical Parameters (SD, BP2)

- During pre-lodgement meeting a discussion was held around the length being 1km shorter than the existing waterway and DEHP wanted to understand the impacts associated with this. After discussion with technical specialists it was noted that:
  - Hydraulic conditions of diversion are similar to existing creek ecosystem
  - Longitudinal grade of diversion is similar to that of existing creek. The diversion maintains the low energy system. It was noted there was a typo in the summary table and that figures were a decimal place out. Anglo American is confirming in these minutes that this is correct and the grade changes from 0.00052 to 0.00065. This minor decrease does not impact on the water characteristics of the creek.
  - The diversion will maintain connectivity between upstream and downstream habitats.
  - The designed rehabilitation and monitoring program within the functional report will assist with the likelihood of an aquatic habitat resembling the existing channel. Slopes do not change significantly and there will be connected pathways through the diversion to allow migration of species.
  - The diversion maintains waterway characteristics in accordance with the guidelines despite the marginal reduction in wavelength and curvature.
- No further information was required from DNRM ~~or DEHP~~ in relation to physical parameters of the functional design and acceptance that the diversion physical parameters design meets requirements of the relevant guidelines.

In Channel Hydraulic Assessment (SD, BP1, BP2)

- Outlined that the majority of the length of the diversion compares favourably with the criteria with only isolated exceedances which will be treated during the detailed design phase with engineering control such as rock armour or similar.
- Each of the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events were discussed in relation to velocity, stream power and shear stresses. Regardless of the exceedances, velocity, stream power and shear stresses in the diversion closely resemble those values of the reach to be diverted and up and downstream reaches. On average the values are marginally higher however the diversion maintains waterway characteristics.
- Technical specialist, Ben Pearson Senior Geomorphologist, provided further justification to support that the hydraulic parameters outlined are in line with the Guidelines in relation to sediment mobilisation and deposition through the reaches and variable aquatic habitat.
- DNRM Scott Stevens had requested further information on the manning's roughness coefficients utilised during the flood modelling. BP1 had outlined that a 0.04 coefficient was used for the in channel assessment and a 0.05 coefficient was utilised for the outerbank assessment. BP1 had outlined that a sensitivity assessment on this

will be completed within the detailed design phase. Scott Stevens had accepted that these figures were appropriate if they reflected the existing roughness parameters.

- BP1 had outlined that there was two sections that showed isolated exceedances in the data. One was 500 m down the diversion in a section where the diversion goes through high ground and the other was a place at the intersection to the Barwon Park Road. It was outlined that these exceedances will be addressed during the detailed design phase coupled with the recently completed geotechnical assessment results.
- No further information was required from DNRM ~~or DEHP~~ in relation to in channel hydraulic assessment of the functional design.

Stream Power and Sediment Transport (SD)

- Outlined that the diversion should not significantly alter downstream sediment conveyance from existing conditions as shown through the observations of the model run in comparison to the existing case.
- Summary tables and graphs were presented for the 1 in 2 and 1 in 50 AEP events.
- No further information was required from DNRM ~~or DEHP~~ in relation to stream power and sediment transport of the functional design.

Flood Impacts (SD)

- Provided the flood impact figures for the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events. Each figure outlined insignificant changes in comparison to the existing watercourse. Flood level increases remain within the mining lease boundary for the 1 in 2 AEP events and only 1.2 – 1.7 km past the mining lease boundary for the 1 in 50 and 1 in 100 AEP event. Again minor isolated exceedances in velocities will be addressed in detailed design phase through engineering treatment such as rock armour or similar.
- The mining lease boundaries were difficult to pick up in the figures and will be made clearer in the final functional report which will be submitted with the EA amendment application.
- The figures were a little difficult to understand and BP1 had summarised how the figures were depicted. There were two models completed. One was HEC-RAS model which is only completed within the channel. The second was a TU-FLOW model which is completed for the out of bank model. The figures provided were only showing the TU-FLOW model results and therefore the in-channel results were not shown in the change. This is because there is currently no channel in the existing scenario and therefore there is nothing to compare the developed channel to. Therefore the figures are only representing changes to the existing out of bank scenario. DNRM understood how this was presented and have no other input required into the figures other than a summary about the parameters and models used in the figure production would be beneficial to the reader. Anglo American will ensure this is put into the functional design prior to the submission of the document with the EA amendment application.
- It was outlined that any increases in flood levels upstream are not adversely impacting on habitable dwellings or public infrastructure.
- No further information was required from DNRM ~~or DEHP~~ in relation to flood impacts of the designed creek diversion and levee project.

Habitat and Vegetation (SD, BP2)

- Outlined that the functional design contains more information than a typically provided functional design and a lot of the habitat and vegetation information is almost at detailed design level.
- Outlined that the diversion has been designed to best replicate the existing creek habitat.
- Conceptual habitat and riparian vegetation management plans to meet guideline values have been provided in the functional design
- Candidate species based on site observations and REMP surveys have been included in the functional design
- Diversion monitoring and visual assessment program, vegetation surveys and assessments against final outcomes have also been included in the functional design
- No further information was required from DNRM ~~or DEHP~~ in relation to habitat and vegetation of the designed creek diversion and levee project.

Barwon Park Road Crossing (SD)

- Outlined that the low level crossing is supported from a geomorphologic perspective as it should maintain the low flow sediment conveyance and not inhibit the sediment transport during high flows, which is similar to the existing Barwon Park Road crossing. As a result, there should be minimal observed change, if any, from the existing condition.
- No further information was required from DNRM ~~or DEHP~~ in relation to the proposed Barwon Park Road public road crossing within the creek diversion.

General

- Catchment plans shown to DNRM for all the catchment included in diversion design however there is some minor tributaries that may need to be discussed with the regulators for approval during the detailed design. For example rock chute design or bypass options. DRNM accepted they will be willing to have a look at these and discuss.
- Description of figures and there inputs will be put on the flood impact plots within the functional design for benefit to the reader
- Low flow channel movement – Anglo American, Hatch and Hydrobiology will include a paragraph on what the long term opinion is on how they think the low flow channel will act long term. Will the diversion meander or likely to remain in position given it is a low energy system.
- Discussed the requirement to potentially have a temporary regulated structure south of Barwon park road with no diversion required. DEHP ~~accepted~~ indicated that a design plan would just be submitted as per EHP's model mining EA conditions prior to construction.

Meeting Closed: 4:00 pm

Conclusion

To close out the action required from the pre-lodgement meeting for the EA amendment application, DNRM did provide preliminary advice at the time of the meeting that the information presented by Anglo American, constitutes the same level of information that would normally be required under a water licence application process prior to an assessment by DNRM. DNRM acknowledges that the conceptual diversion design report refers to the current guidelines for watercourse diversions and that the development of a detailed design plan will address specific matters of interest that require further more detailed analysis.

The Department of Natural Resources and Mines was present at the meeting with Anglo American and DEHP representatives to discuss the proposed diversion of Cockatoo Creek. The meeting notes provided are a reflection of the discussions between all attendees based on the information provided during the presentation by Anglo -American and the accompanying functional design report.

Acceptance of Meeting Minutes

Department of Environment and Heritage Protection Representative
Name: Position: Signature: Date: / / 2016

AngloAmerican

MEETING MINUTES

Foxleigh Plains Cockatoo Creek Diversion & Levee

Technical Review of Functional Design
DNRM and DEHP Stakeholder Engagement Meeting

2 March 2016
03:00 pm to 04:00 pm
Author: Skye Davis

Present:

Company	Attendance
Anglo American	Skye Davis (SD)
Technical Specialist for Anglo American	Ben Phillips (Senior Water Engineer Hatch, BP1)
	Ben Pearson (Senior Geomorphologist Hydrobiology, BP2)
Department of Environment & Heritage Protection (DEHP)	Jacob Toe (JT)
	Liz Clarke (LC)
	Ashley Tones (AT)
Department of Natural Resources and Mines (DNRM)	Scott Stevens (SS)
	Sara Hillman (SH)

Apologies: Jeremy Marston (Anglo American, JM), Jason Fittler (Anglo American, JF)

Meeting Open: 03:00 pm

Purpose of the meeting:
The purpose of the meeting was to attempt to close out an action from the pre-lodgement meeting surrounding the EA amendment application for the Foxleigh Plains Creek Diversion and Levee Project which involved ensuring Department of Natural Resources and Mines (DNRM) are satisfied with the functional design and design intent of the diversion prior to lodgement of the EA amendment application to Department of Environment and Heritage Protection (DEHP).

Resources provided prior to the meeting:

- Full Draft Functional Design Report written by Hatch and Hydrobiology of the Cockatoo Creek Diversion and Levee for the Foxleigh Plains Project
- Summary slide pack for this meeting which summarised the full functional design for discussion at this meeting
- EA Amendment Application pre-lodgement meeting slide presentation presented on 16 March 2016 to DEHP in Emerald. This was provided to ensure DNRM had the same information as DEHP.

AngloAmerican

Executive Summary

Meeting Agenda Item	DNRM Summary	DEHP Summary
Regulations consulted in functional design	Acknowledgement that correct guidelines used in functional design No Concerns Raised	No Concerns Raised.
Design criteria adopted in functional design	Agreed that even though the DNRM 2014 guidelines had not yet been adopted by DNRM that they are the correct design criteria to be used given they are more more suitable to the type of diversion proposed (alluvial) and therefore more relevant in detailed design then the diversion performance from the 2002 criteria. No Concerns Raised	No Concerns Raised.
Flood Model	Acknowledgement that the model adopted in the functional design showed close correlation to the EIS No Concerns Raised	No Concerns Raised.
Comparison of Physical Parameters	Acknowledgement that the physical parameters were not significantly different to the existing watercourse. No Concerns Raised	No Concerns Raised.
In Channel Hydraulic Assessment	Acknowledgement that the in channel hydraulic assessment meets the required guidelines. DNRM acknowledged that the project is low risk and is in similar design characteristics to other diversions in the Bowen Basin. This comment was made in relation to the diversion itself in context with the hydraulic/energy conditions and the ability to be able to replicate those of the existing watercourse. It is noted that the hydraulic conditions within the diversion are higher on average than the existing watercourse and that to maintain long-term stability, vegetation will play an important role.Vegetation management and monitoring program is included within the functional report and will be addressed further in the detailed design.	No Concerns Raised.
Stream Power & Sediment	Acknowledgement that the stream	No concerns raised.

Transport	power and sediment transport analysis is within guideline requirements. DNRM raised the issue about localised impacts and transition zones. In addition, it was highlighted that one of the main issues with existing diversions in general is in interception with other drainage features and how this may impact on the diversion however this will be further addressed in the detailed design.	
Flood Impacts	DNRM were shown maps showing change to the existing watercourse and showing marginal increases/decreases in water levels but primarily the impacts were within the mining lease and showed insignificant changes off mining lease in comparison to existing watercourse.	No concerns raised.
Habitat and Vegetation	Acknowledgement that the functional design contains more information than normally presented in a functional design document. No concerns raised.	No concerns raised.

AngloAmerican

Introduction Commentary (SD)

- Introduction of technical specialists from Hatch and Hydrobiology who have written the functional design. Ben Phillips from Hatch is a Senior Water Engineer and Ben Pearson from Hydrobiology is a Senior Geomorphologist.
- Introduced the members of DNRM and DEHP to these technical specialists.
- Outlined purpose of the meeting to close out action from pre-lodgement meeting and provided copies of the slide pack presentation that provided an executive summary of the full draft functional design. In particular, it was noted that this meeting was to ensure that DNRM are satisfied that the design and design intent
- DNRM and DEHP had in front of them the full copy of the functional design to flick over to if required when going through the executive summary presentation.
- The agenda included the following topics to be discussed:
  - Regulations consulted in functional design
  - Design criteria adopted in functional design
  - Flood model verification to EIS
  - Comparison of physical parameters
  - In channel hydraulic assessment results
  - Stream power and sediment transport results
  - Flood impacts
  - Habitat and Vegetation
  - Public road crossing in diversion hydraulics

Regulations Consulted in Functional Design (SD)

- Outlined main pieces of regulations used in the functional design
- Outlined that the design is based around meeting the final relinquishment outcomes specified in the DNRM guidelines and associated ACARP Guidelines.
- No further information required from DNRM in relation to Guidelines used during the design phase.

Design Criteria Adopted in Functional Design (SD, BP1)

- Outlined that even though the ACARP 2014 guideline had not yet been fully adopted by DNRM that this one had been used as basis of the functional design. DNRM had acknowledged that this is the one that should be used as most applicable to the proposed diversion.
- No further information DNRM in relation to design criteria used during the design phase and acceptance that the most applicable criteria have been utilised.

Flood Model Correlation to EIS (SD, BP1)

- Outlined that an independent hydraulic assessment had been conducted with the function design. Surface water hydrology for the project was undertaken using RORBWin Hydrological model which is an event based hydrological model that applies design or custom rainfall hyetographs to calculate flood hydrographs.
- Tables presented in relation to comparison of derived discharges to the EIS reported peak discharges indicated that the functional design provided good correlation to the EIS reported design flows.

- DNRM were shown maps showing change to the existing watercourse and showing marginal increases/decreases in water levels but primarily the impacts were within the mining lease and showed insignificant changes off mining lease in comparison to existing watercourse.

Comparison of Physical Parameters (SD, BP2)

- During pre-lodgement meeting a discussion was held around the length being 1km shorter than the existing waterway and DEHP wanted to understand the impacts associated with this. After discussion with technical specialists it was noted that:
  - Hydraulic conditions of diversion are similar to existing creek ecosystem
  - Longitudinal grade of diversion is similar to that of existing creek. The diversion maintains the low energy system. It was noted there was a typo in the summary table and that figures were a decimal place out. Anglo American is confirming in these minutes that this is correct and the grade changes from 0.00052 to 0.00065. This minor decrease does not impact on the water characteristics of the creek.
  - The diversion will maintain connectivity between upstream and downstream habitats.
  - The designed rehabilitation and monitoring program within the functional report will assist with the likelihood of an aquatic habitat resembling the existing channel. Slopes do not change significantly and there will be connected pathways through the diversion to allow migration of species.
  - The diversion maintains waterway characteristics in accordance with the guidelines despite the marginal reduction in wavelength and curvature.
- No further information was required from DNRM in relation to physical parameters of the functional design and acceptance that the diversion physical parameters design meets requirements of the relevant guidelines.

In Channel Hydraulic Assessment (SD, BP1, BP2)

- Outlined that the majority of the length of the diversion compares favourably with the criteria with only isolated exceedances which will be treated during the detailed design phase with engineering control such as rock armour or similar.
- Each of the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events were discussed in relation to velocity, stream power and shear stresses. Regardless of the exceedances, velocity, stream power and shear stresses in the diversion closely resemble those values of the reach to be diverted and up and downstream reaches. On average the values are marginally higher however the diversion maintains waterway characteristics.
- Technical specialist, Ben Pearson Senior Geomorphologist, provided further justification to support that the hydraulic parameters outlined are in line with the Guidelines in relation to sediment mobilisation and deposition through the reaches and variable aquatic habitat.
- DNRM Scott Stevens had requested further information on the manning's roughness coefficients utilised during the flood modelling. BP1 had outlined that a 0.04 coefficient was used for the in channel assessment and a 0.05 coefficient was utilised for the outerbank assessment. BP1 had outlined that a sensitivity assessment on this

will be completed within the detailed design phase. Scott Stevens had accepted that these figures were appropriate if they reflected the existing roughness parameters.

- BP1 had outlined that there was two sections that showed isolated exceedances in the data. One was 500 m down the diversion in a section where the diversion goes through high ground and the other was a place at the intersection to the Barwon Park Road. It was outlined that these exceedances will be addressed during the detailed design phase coupled with the recently completed geotechnical assessment results.
- No further information was required from DNRM in relation to in channel hydraulic assessment of the functional design.

Stream Power and Sediment Transport (SD)

- Outlined that the diversion should not significantly alter downstream sediment conveyance from existing conditions as shown through the observations of the model run in comparison to the existing case.
- Summary tables and graphs were presented for the 1 in 2 and 1 in 50 AEP events.
- No further information was required from DNRM in relation to stream power and sediment transport of the functional design.

Flood Impacts (SD)

- Provided the flood impact figures for the 1 in 2, 1 in 50, 1 in 100 and 1 in 1000 AEP events. Each figure outlined insignificant changes in comparison to the existing watercourse. Flood level increases remain within the mining lease boundary for the 1 in 2 AEP events and only 1.2 – 1.7 km past the mining lease boundary for the 1 in 50 and 1 in 100 AEP event. Again minor isolated exceedances in velocities will be addressed in detailed design phase through engineering treatment such as rock armour or similar.
- The mining lease boundaries were difficult to pick up in the figures and will be made clearer in the final functional report which will be submitted with the EA amendment application.
- The figures were a little difficult to understand and BP1 had summarised how the figures were depicted. There were two models completed. One was HEC-RAS model which is only completed within the channel. The second was a TU-FLOW model which is completed for the out of bank model. The figures provided were only showing the TU-FLOW model results and therefore the in-channel results were not shown in the change. This is because there is currently no channel in the existing scenario and therefore there is nothing to compare the developed channel to. Therefore the figures are only representing changes to the existing out of bank scenario. DNRM understood how this was presented and have no other input required into the figures other than a summary about the parameters and models used in the figure production would be beneficial to the reader. Anglo American will ensure this is put into the functional design prior to the submission of the document with the EA amendment application.
- It was outlined that any increases in flood levels upstream are not adversely impacting on habitable dwellings or public infrastructure.
- No further information was required from DNRM in relation to flood impacts of the designed creek diversion and levee project.

AngloAmerican

Habitat and Vegetation (SD, BP2)

- Outlined that the functional design contains more information than a typically provided functional design and a lot of the habitat and vegetation information is almost at detailed design level.
- Outlined that the diversion has been designed to best replicate the existing creek habitat.
- Conceptual habitat and riparian vegetation management plans to meet guideline values have been provided in the functional design
- Candidate species based on site observations and REMP surveys have been included in the functional design
- Diversion monitoring and visual assessment program, vegetation surveys and assessments against final outcomes have also been included in the functional design
- No further information was required from DNRM in relation to habitat and vegetation of the designed creek diversion and levee project.

Barwon Park Road Crossing (SD)

- Outlined that the low level crossing is supported from a geomorphologic perspective as it should maintain the low flow sediment conveyance and not inhibit the sediment transport during high flows, which is similar to the existing Barwon Park Road crossing. As a result, there should be minimal observed change, if any, from the existing condition.
- No further information was required from DNRM in relation to the proposed Barwon Park Road public road crossing within the creek diversion.

General

- Catchment plans shown to DNRM for all the catchment included in diversion design however there is some minor tributaries that may need to be discussed with the regulators for approval during the detailed design. For example rock chute design or bypass options. DRNM accepted they will be willing to have a look at these and discuss.
- Description of figures and there inputs will be put on the flood impact plots within the functional design for benefit to the reader
- Low flow channel movement – Anglo American, Hatch and Hydrobiology will include a paragraph on what the long term opinion is on how they think the low flow channel will act long term. Will the diversion meander or likely to remain in position given it is a low energy system.
- Discussed the requirement to potentially have a temporary regulated structure south of Barwon park road with no diversion required. DEHP indicated that a design plan would just be submitted as per EHP's model mining EA conditions prior to construction.

Meeting Closed: 4:00 pm

AngloAmerican

Conclusion

To close out the action required from the pre-lodgement meeting for the EA amendment application, DNRM did provide preliminary advice at the time of the meeting that the information presented by Anglo American, constitutes the same level of information that would normally be required under a water licence application process prior to an assessment by DNRM. DNRM acknowledges that the conceptual diversion design report refers to the current guidelines for watercourse diversions and that the development of a detailed design plan will address specific matters of interest that require further more detailed analysis.

The Department of Natural Resources and Mines was present at the meeting with Anglo American and DEHP representatives to discuss the proposed diversion of Cockatoo Creek. The meeting notes provided are a reflection of the discussions between all attendees based on the information provided during the presentation by Anglo American and the accompanying functional design report.

Acceptance of Meeting Minutes

Department of Environment and Heritage Protection Representative
Name: Liz Clarke
Position: Team Leader
Signature: 4(6) Personal inforn
Date: 17 / 3 / 2016

From: CLARKE Liz [Liz.Clarke@ehp.qld.gov.au]
Sent: Thursday, 31 March 2016 4:02 PM
To: 'Rebecca Miller'
Subject: RE: Foxleigh Plains Pit Expansion Project

Hi Rebecca,

Just letting you know that I am still waiting to find out the due date for the ALD. I have chased up PALM and will hopefully receive a response soon.

I note that the QBOP / EO Act biodiversity offsets are to be delivered with the EPBC Act offsets. Are you able to please quantify the disturbance for the matters to be impacted, so that this can be included in the EA? The EA will not that the offsets are to be delivered under the EPBC Act. And the inclusion of this in the EA will be so that the authorised disturbance is easily identifiable to the EA holder and EHP.

Can you please provide the information in line with the table below (which I have taken out of the Grosvenor EA)?

Table G5: Significant residual impacts to prescribed environmental matters

Prescribed environmental matters	Maximum extent of Impact
REGULATED VEGETATION	
Endangered regional ecosystem 11.3.1	*1.30ha*
Endangered regional ecosystem 11.4.9	*1.11ha*
Of concern regional ecosystem 11.3.4	*0.97ha*
Of concern regional ecosystem 11.4.2	*74.74ha*
*Of concern regional ecosystem 11.3.2**	*41.92ha*
Wetlands and watercourses	
Least concern regional ecosystem 11.3.27f	*0.56ha*
*Least concern regional ecosystem 11.5.3b**	*1.03ha*
Least concern regional ecosystem 11.3.25	*21.46ha*
*Of concern regional ecosystem 11.3.2**	*1.03ha*
Of concern regional ecosystem 11.3.4	*0.19ha*
*Least concern regional ecosystem 11.5.3**	*0.89ha*
Least concern regional ecosystem 11.3.27f	*0.01ha*
Least concern regional ecosystem 11.5.9c	*0.67ha*
Of concern regional ecosystem 11.4.2	*0.26ha*
Least concern regional ecosystem 11.3.7	*0.08ha*
CONNECTIVITY AREAS	
Connectivity Area	*192.19ha*

*Listed under the *Environmental Protection And Biodiversity Conservation Act 1999* (Cth) and *Nature Conservation Act 1992* (Qld) as Squatter Pigeon habitat area and confirmed on ML70378, but offset was not imposed for this species under the *Environmental Protection And Biodiversity Conservation Act 1999* approval, no offsets are required under the *Environmental Offsets Act 2014* (Qld). Total calculated habitat area for the Squatter Pigeon equates to 44.88ha of impacted area.

Happy to discuss.

Kind regards

Liz Clarke
Team Leader (Assessment)
Business Centre (Coal) | Coal and Central Queensland Compliance
Department of Environment and Heritage Protection

P 07 4987 9386
99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

I acknowledge the Traditional Owners and custodians of the land I work on as the first people of this country.

From: Rebecca Miller [mailto:rmiller@hansenbailey.com.au]
Sent: Tuesday, 29 March 2016 4:10 PM
To: CLARKE Liz <Liz.Clarke@ehp.qld.gov.au>
Subject: RE: Foxleigh Plains Pit Expansion Project

No worries. Thanks Liz.

Can you please confirm when the assessment level decision is due? And assuming it's a minor EA amendment, when the amended EA will be due?

Kind regards,
Rebecca

Rebecca Miller
Senior Environmental Scientist
HANSEN BAILEY
Tel: (07) 3226 0900
Fax: (07) 3226 0901
Email: rmiller@hansenbailey.com.au

From: CLARKE Liz [mailto:Liz.Clarke@ehp.qld.gov.au]
Sent: Tuesday, 29 March 2016 4:07 PM
To: Rebecca Miller <rmiller@hansenbailey.com.au>
Subject: RE: Foxleigh Plains Pit Expansion Project

Hi Rebecca,

Yes I've downloaded them successfully this morning. Sorry, I meant to email to confirm that I had done this but I became side-tracked.

Kind regards

Liz Clarke
Team Leader (Assessment)
Business Centre (Coal) | Coal and Central Queensland Compliance
Department of Environment and Heritage Protection

P 07 4987 9386
99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

I acknowledge the Traditional Owners and custodians of the land I work on as the first people of this country.

From: Rebecca Miller [mailto:rmiller@hansenbailey.com.au]
Sent: Tuesday, 29 March 2016 4:05 PM
To: CLARKE Liz <Liz.Clarke@ehp.qld.gov.au>
Subject: Foxleigh Plains Pit Expansion Project

Hi Liz,

Just checking to see that you were able to download the Foxleigh Plains Pit Expansion Project EAR from Hightail without any difficulties?

Kind regards,
Rebecca
Rebecca Miller
Senior Environmental Scientist
HANSEN BAILEY
Tel: (07) 3226 0900
Fax: (07) 3226 0901
Email: rmiller@hansenbailey.com.au

From: Barbara Mills
Sent: Thursday, 24 March 2016 3:37 PM
To: Clarke Liz (Liz.Clarke@ehp.qld.gov.au) <Liz.Clarke@ehp.qld.gov.au>
Cc: Rebecca Miller <rmiller@hansenbailey.com.au>; skye.davis@angloamerican.com; 'Jason.Fittler@angloamerican.com' <Jason.Fittler@angloamerican.com>; Marston, Jeremy (jeremy.marston@angloamerican.com) <jeremy.marston@angloamerican.com>; Peter Hansen <phansen@hansenbailey.com.au>
Subject: Foxleigh Plains Pit Expansion Project

Good afternoon Liz

We have this afternoon submitted, via PALM on behalf of Anglo American, the application form to amend an environmental authority and an accompanying CD of an Environmental Assessment Report for the Foxleigh Plains Pit Expansion Project.
A copy of the receipt from the George Street office is attached.
As the electronic files are too large to email, I am currently uploading them via a Hightail link which will be sent to your email later this afternoon. Please let me know if you are unable to access this link and I will find another way to upload the

documents to you.

If you have any queries please do not hesitate to contact either myself or Rebecca Miller on the number below

Kind regards

Barbara Mills
Administration Manager
HANSEN BAILEY
Tel: (07) 3226 0900
Fax: (07) 3226 0901
Email: bmills@hansenbailey.com.au

From: PALM [palm@ehp.qld.gov.au]
Sent: Friday, 8 April 2016 11:39 AM
To: CR Mining
Subject: AR085577

No hard copy

An application has been received by the Customer Service Team (PaLM) and requires your assessment.

Type: Minor amendment
AR: AR085577
Project: 173685
Client: CAML Resources Pty Ltd, Anglo Coal (Foxleigh) Pty Ltd, Nippon Steel & Sumitomo Metal Australia Pty Ltd
Permit: EPML00744813
Appl ID: 598853

All application documents have been attached to Ecotrack/eDocs and can be searched by the AR number.

If you have any questions regarding this application please contact Annemarie Lewis or send an email to palm@ehp.qld.gov.au

Regards

Liz Patu
Administration Officer
Customer Service Team | Regulatory Capability and Customer Service
Department of Environment and Heritage Protection
P 1300 130 372 **F** 07 3330 5875 **E** palm@ehp.qld.gov.au
Level 9 – 400 George Street BRISBANE QLD 4000
GPO Box 2454, BRISBANE QLD 4001

From: CLARKE Liz [Liz.Clarke@ehp.qld.gov.au]
Sent: Monday, 11 April 2016 9:50 AM
To: SMITH Tara
Subject: FW: Reference to Meeting Notes from last week - Cockatoo Creek Diversion

Follow Up Flag: Follow up
Flag Status: Flagged

FYI – DNRM advice / position on the realigned Foxleigh stream diversion.

From: STEVENS Scott
Sent: Friday, 8 April 2016 3:40 PM
To: CLARKE Liz <Liz.Clarke@ehp.qld.gov.au>
Cc: HILLMAN Sara <Sara.Hillman@dnrm.qld.gov.au>
Subject: RE: Reference to Meeting Notes from last week - Cockatoo Creek Diversion

Hi Liz

Firstly, just to clarify my comments from the pre-lodgement meeting, I indicated that the proposed diversion as documented within the Hatch report would be considered a low risk due to the modelled stream energy conditions within the channel and adjoining floodplain. I stated that I hadn't reviewed the concept report of the current approved diversion but given the relatively proximity to the proposed diversion, the impacts would be of a similar nature. The proposed diversion is however higher in the landscape as will be engaging with the adjacent elevated ridges and relief adjoining the floodplain. This may present other localised issues such as narrowing of the channel boundaries in steeper slopes increasing steam hydraulic conditions. The interception of drainage features along the diversion will require design modifications due to the diversion channel bed level being lower than the bed level of the drainage feature. This was discussed at the meeting with a proposal to alter the drainage feature alignment into the diversion further downstream which is seen as a potential preferred long-term option rather than the current proposed rock lined structure. Further detail should be presented during the design phase and appropriately referenced in engineered drawings.

Another topic of interest raised included the proposed flooding extents upstream of the diversion. A response was provided during the meeting that the extent or area of impact will be similar to the existing case due to topographical constraints, however the afflux (or depth) and time of inundation will increase. The consideration of existing infrastructure including property buildings from afflux and time of inundation were discussed however as EHP and Anglo have more detailed information external to the report findings, I have not decided to include any further comment.

The final matter worth raising and was discussed during the meeting was the role of vegetation in providing the long-term stability of the diversion surfaces. The immediate challenge that Anglo will encounter is that the soil properties will be less than conducive to vegetation establishing and that climatic conditions will provide a critical role in successful establishment. That said, given the design principles of the proposed diversion channel and adjacent floodplain, the diversion itself will sustain flows without significant erosion concerns undermining its stability and performance. Previous experience of other diversions on Foxleigh receiving flows post construction and prior to vegetation establishment has given greater confidence to the industry and department alike that the current design principles are appropriate.

Following the meeting, I have further reviewed the current approved diversion concept report and the amended Hatch functional design report and conclude that the current approved diversion has similar stream hydraulic conditions to the proposed diversion. Taking into consideration the information before me, I would consider that the proposed diversion will behave in a similar manner to the approved diversion. While it is not my position to make comparisons whether the

environmental impact of the proposed diversion will be significantly different to the current approved diversion, I have provided information that will assist you in answering this question.

Happy to discuss this further, feel free to contact me should you wish.

Regards
Scott Stevens
Senior Project Officer
Central West Region
Department of Natural Resources and Mines

Biloela Research Station
LMB 1 Biloela Q 4715
Telephone:0749929104 Fax: 0749923468
Email:scott.stevens@dnrm.qld.gov.au
www.dnrm.qld.gov.au

From: CLARKE Liz
Sent: Thursday, 31 March 2016 1:55 PM
To: STEVENS Scott
Subject: RE: Reference to Meeting Notes from last week - Cockatoo Creek Diversion

Hi Scott,

EHP has now received the EA amendment application for the Foxleigh Plains Expansion Project, which includes the realignment of the Cockatoo Creek watercourse diversion. During the pre-lodgement meeting on 2 March 2016 you indicated that, based on the functional design provided by Anglo, the proposed change in alignment of the diversion would not likely result in significantly different environmental impacts as compared to the current approval; and that the realignment is relatively low risk in terms of changes from the current approval. Are you able to please confirm that DNRM is still of this opinion? DNRM's technical advice will assist with EHP's Assessment Level Decision.

I have tried to attach the final submitted Functional Design Report, but it's too large to send via email. I have saved this in Dropbox, if you have access? A separate email will be sent via Dropbox with the access information.

Am I able to please have a response back by Monday, 11 April 2015?

Happy to discuss anything in the meantime.

Kind regards

Liz Clarke
Team Leader (Assessment)
Business Centre (Coal) | Coal and Central Queensland Compliance
Department of Environment and Heritage Protection

P 07 4987 9386
99 Hospital Road, Emerald QLD 4720
PO Box 3028, Emerald QLD 4720

I acknowledge the Traditional Owners and custodians of the land I work on as the first people of this country.

From: STEVENS Scott
Sent: Wednesday, 9 March 2016 10:16 AM
To: CLARKE Liz <Liz.Clarke@ehp.qld.gov.au>
Subject: Reference to Meeting Notes from last week - Cockatoo Creek Diversion

Hi Liz,

I refer to the meeting notes provided by Skye Davis from the discussions last week in Emerald.

I would like to reaffirm our role in the process of providing technical advice to DEHP as part of our ongoing support with the transition of watercourse diversions across to EA's. Our advice doesn't extend to the provision of support for a proposed diversion or whether the diversion meets the statutory requirements of all legislation.

At the meeting, I offered the preliminary advice that we undertook a brief review of the functional design report and thus, made comment on issues that were identified and indicated that the functional design report was comprehensive and appeared to have addressed the criteria under the current watercourse diversion guidelines. We have not undertaken an assessment that we would normally complete if this was an application for a water licence. I am more than happy to provide further advice in respect to the report, please advise as I would be happy to comment if required.

I will be responding to Skye about the meeting notes and particularly the last section about our satisfaction and support of the diversion. Will cc you into the response.

On a side note, I had the understanding that all diversions would require a major EA amendment rather than a minor, can you clarify the approach DEHP is taking with this proposal and is this the intended approach of DEHP in the future?

Finally, good to meet you in person.

Regards

Scott Stevens
Senior Project Officer
Central West Region
Department of Natural Resources and Mines

Biloela Research Station
LMB 1 Biloela Q 4715
Telephone:0749929104 Fax: 0749923468
Email:scott.stevens@dnrm.qld.gov.au
www.dnrm.qld.gov.au

..	S...	Edit Date	Doc #	Document Name
	80%	8/04/2016 4:01:32 PM	4542615	EA Amendment 20160324 Application Table of Contents EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 4:00:48 PM	4542608	EA Amendment 20160324 Application Executive Summary EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:59:49 PM	4542587	EA Amendment 20160324 Application EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:58:31 PM	4542583	EA Amendment 20160324 Application BringUp Email EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:57:49 PM	4542581	EA Amendment 20160324 Application Appendix B EA EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:56:55 PM	4542575	EA Amendment 20160324 Application 8 Environmental Assessment Report Study Team EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:56:06 PM	4542573	EA Amendment 20160324 Application 7 Abbreviations EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:55:09 PM	4542571	EA Amendment 20160324 Application 6 References EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:54:21 PM	4542567	EA Amendment 20160324 Application 5 Glossary EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:53:29 PM	4542557	EA Amendment 20160324 Application 4 Environmental Assessment EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:51:56 PM	4542547	EA Amendment 20160324 Application 3 Project Description EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:50:46 PM	4542540	EA Amendment 20160324 Application 2 Regulatory Framework EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	80%	8/04/2016 3:49:40 PM	4542533	EA Amendment 20160324 Application 1 Introduction EPML00744813 CAML Resources Pty Ltd Foxleigh Coal Mine
	78%	8/04/2016 11:40:10 AM	4541394	Application 20160408 Processing checklist AR085577 CAML Resources Pty Ltd, Anglo Coal (Foxleigh) Pty Ltd, Nippon Steel & Sumitomo Metal Australi...
	78%	8/04/2016 11:39:40 AM	4541386	Applicatiion 20160408 Bring up AR085577 CAML Resources Pty Ltd, Anglo Coal (Foxleigh) Pty Ltd, Nippon Steel & Sumitomo Metal Australia Pty Ltd EP...

Work Request
Technical Support Team

Date of request: 12.04.2016

Requesting Officer: Tara Smith

Phone Number: 07 4987 9331

Office/Region: Emerald

Date Response is Required: 15.04.2016

Email Address for Response: tara.smith@ehp.qld.gov.au

Manager: Kate Bennink

Manager's Phone Number: 07 4987 9384

Manager's Approval of Request: No

Proponent / Company / Person / Project: CAML Resources Pty Ltd, Anglo Coal (Foxleigh) Pty Ltd, Nippon Steel & Sumitomo Metal Australia Pty Ltd

Site/Location (if relevant): Foxleigh Coal Mine

File Number and Doc# : PR173685 / 101/0000120 *This is used to locate any specific EDOCs files that are associated with this work request.*

Request Type

☒ EIS / High Risk Assessment *(Requires Director to approve request is for high risk assessment)*
Has director approval been given?
☐ Compliance
☐ Policy Advice

Issue Type(s)
Please delete all bar relevant issues

Water
Land (Other)
Ecosystem

Other: *Please state*

Support Category
Please delete all bar relevant category

Other: Amendment application under s. 223 (b) of *the Environmental Protection Act 1994:* 'does not significantly increase the level of environmental harm caused by the relevant activity'.

EA Number *(if relevant)*: EPML00744813

Details of Activity/Issue: Amendment application to expand the pit and realign the watercourse diversion (currently approved)

Nature of assistance requested (describe): Need to understand if the environmental impacts of the realignment will cause a greater/ more significant level of environmental harm than the already approved watercourse diversion. The original diversion of Cockatoo Creek was approved as part of the EIS and associated EA amendment in 2013.

Specific issues have been identified by DNRM, however the environmental impacts are not discussed. The three areas of interest (please see email attached) relate to the interception of

drainage features into the watercourse diversion, the increase in depth and time of inundation, and vegetation for long term stability of the diversion. The current Functional Design Report (eDOCS #4545773), and the Application documents are located in eDOCs (see JPEG attached), all beginning with 'EA Amendment 20160324'. Application 4 Environmental Assessment may be relevant to the specific questions posed above.

The 2013 EIS Stage 2 Cockatoo Creek Diversion (eDOCs 2543360) for the currently approved diversion and 'Appendix H – Waterways' assessment report are located via the following link: T:\Temporary_Central\Tara Smith\Foxleigh Plains - Cockatoo Creek Diversion.

If any of these issues are significant, it will influence the Assessment Level Decision (ALD) which is due on the 20th April, which is currently proposed to be a minor amendment.

Note: Please attach relevant files to request or state EDOCS items number. Every effort will be made to accommodate requests.

Precedence is given to statutory timeframes and environmental issues of an urgent nature and some negotiation of timeframes may be required in circumstances of high workloads.

Officers are advised that you will be required to provide feedback on the Technical Specialist and the content of their work after every work request.

Please return completed forms to: **technicalsupport@ehp.qld.gov.au**

Technical Support Response

This section is to be filled out by the Technical Specialist only. This document will then be sent back to you with the response to the technical support work request shown here.

Date of Technical Response:

Requesting Officer:

Technical Specialist:

Response to Technical Support Request:

Attachments? Please list:

Could all Technical Specialists please save their response in their allocated folder with the request date first and the requesting officers name. i.e. ***20160315_Officer Name****. Folders are located here.*

Please note any attachments on this response form and attach it when saving the document in your allocated folder. i.e. ***20160315_Officer Name_1 of 2*** *and* ***20160315_Officer Name_2 of 2.***

From: CLARKE Liz [Liz.Clarke@ehp.qld.gov.au]
Sent: Wednesday, 13 April 2016 1:31 PM
To: BENNINK Kate
CC: SMITH Tara
Subject: ESR Alert: Foxleigh Mine – Major amendment ALD
Attachments: Attachment 1.pdf; Attachment 2.pdf

ALERT CATEGORY:

- Departmental activity.

ALERT NAME:

- Foxleigh Mine – Major amendment Assessment Level Decision (ALD)

CUSTOMER DETAILS:

- Foxleigh Mine is a coal mine that operates under environmental authority (EA) EPML00744813 by CAML Resources Pty Ltd, Anglo Coal (Foxleigh) Pty Ltd and Nippon Steel & Sumitomo Metal Australia Pty Ltd.
- CAML Resources Pty Ltd and Anglo Coal (Foxleigh) Pty Ltd are subsidiaries of Anglo American Metallurgical Coal Pty Ltd (Anglo).

SUMMARY OF ISSUE/S:

- The EA amendment application was submitted to the Department of Environment and Heritage Protection (EHP) on 24 March 2016 and proposes an extension of the Foxleigh Plains pit at Foxleigh Coal Mine. The application date was considered to be 6 April 2016 (when the application fee was paid) and the ALD is to be decided by 20 April 2016.
- The proposed extension does not add an additional mining lease, does not include any additional surface area disturbance and will not increase the annual run of mine (ROM) coal extraction rate.
- The proposed extension proposes to realign the Cockatoo Creek Diversion (which has not yet been constructed, however was approved under an EIS and EA amendment in 2013) further towards the east of the current authorised location.
- On 16 February 2016, EHP's Business Centre Coal (BCC) attended a pre-lodgement meeting with Anglo and Hanson Bailey (consultants) regarding the proposed extension.
- During this meeting, BCC advised Anglo that the EA amendment application documents would need to demonstrate that the environmental impacts from the realigned watercourse diversion would not significantly increase from the currently approved diversion. This would assist EHP's BCC with determining the ALD for the application.
- On 4 March 2016, EHP's BCC and the Department of Natural Resources and Mines (DNRM) attended another pre-lodgement meeting with Anglo and Hydrobiology (consultants) regarding the draft Functional Design Report for the realigned watercourse diversion. The discussions primarily focussed on DNRM's requirements for watercourse diversions and to assist EHP's BCC to gauge additional understanding on the potential increase in environmental impacts.
- Based on the information provided and discussions during the meeting EHP's BCC advised that on face value, there did not appear to be any significant concerns in terms of increased environmental impacts. It was indicated that a minor amendment may be the relevant process, but that additional advice from DNRM would be required to be provided.
- EHP's BCC received advice from DNRM on 8 April 2016 regarding the final Functional Design Report that was submitted with the EA amendment application. DNRM concluded that proposed design would have similar stream hydraulic conditions as compared to the currently proposed diversion.
- However, as the advice received from DNRM (**Attachment 1**) did not conclude whether additional environmental harm may occur from the proposed watercourse diversion, advice was requested from EHP's Technical Support team. This advice was received on 12 April 2016 (**Attachment 2**) and concluded that the application may be considered to significantly increase the level of environmental harm caused by the relevant activity due to the following key considerations:
    - The proposed diversion is higher in the landscape and depending on the detailed design option chosen, the diversion would entail a larger footprint of disturbance or would have steeper slopes which may present more difficulty in maintaining stream bank vegetation.
    - The interception of drainage features in the current design creates a longer term risk of head erosion affecting these tributaries, and depending upon difference in elevations, a risk of impeding migration of fauna such as fish upstream.
    - The stream diversion will incise soils that will form the banks that are apparently less conducive to establishing the vegetation desirable for long term stability of the banks. Any significant lengthening in the time taken to establish a self-sustaining native stream bank vegetation would present a significant risk of environmental harm.
- On 12 April 2016 (prior to BCC receiving advice from EHP's Technical Support team), Hansen Bailey phoned EHP's BCC

requesting an application assessment update. Both parties discussed that a minor amendment process may still be applicable, however EHP's BCC advised Hansen Bailey that the application had been referred to the Technical Support team for assistance with determining the ALD.

- On 13 April 2016, EHP's BCC advised the applicant of the concerns for an increase in significant environmental harm and has been be provided with an opportunity to address EHP's concerns prior to making the ALD.

POTENTIAL IMPACTS / RISKS:

- Anglo may make representations to EHP in regards to the pending ALD decision for this application, which may be decided as a major amendment.
- A major amendment application process will require Anglo to pay an assessment fee of $45,686.66, which will result in a more time consuming assessment process that requires public notification and may result in a Land Court process in the event that objections to the draft EA are submitted.
- In the event that a significant increase of environmental harm is considered to occur, deciding the application as a minor amendment would:
    - Not provide EHP with the opportunity to request additional information to assess all the potential environmental impacts associated with the realigned diversion of Cockatoo Creek.
    - Not provide members of the public and other stakeholders with an opportunity to lodge a submission to an activity that they may have an interest in.

DEPARTMENT ACTIONS:
[PLANNED ACTIONS]

- In the event that the applicant cannot provide the information to EHP within a reasonable timeframe prior to 20 April 2016:
    - EHP's BCC will recommend that the applicant withdraw the application and resubmit once the information has been collected; or
    - EHP's BCC will progress with issuing a "major amendment" ALD decision.
- EHP will continue to liaise with Anglo in regards to its requirements and expectations for providing all relevant information for the amendment application.

LOCALITY DETAILS AND PHOTOGRAPHS:

- Approximately 5km south-east of the township of Middlemount in Central Queensland.

KEY COMMUNICATION MESSAGES:

- Despite pre-lodgement discussions indicating that on face value a minor amendment assessment process may be relevant for the EA amendment application, technical advice received since the meetings and after reviewing the application has determined that the application may be assessed as a major amendment due to significant increase in environmental harm.
- EHP may issue an ALD for a major amendment to Anglo by 20 April 2016.

CONTACT DETAILS:

- Name: Reuben Carlos
- Phone number: 4837 3318
- Division: ESR – Central Region

CLARKE Liz

From: STEVENS Scott
Sent: Friday, 8 April 2016 3:40 PM
To: CLARKE Liz
Cc: HILLMAN Sara
Subject: RE: Reference to Meeting Notes from last week - Cockatoo Creek Diversion

Hi Liz

Firstly, just to clarify my comments from the pre-lodgement meeting, I indicated that the proposed diversion as documented within the Hatch report would be considered a low risk due to the modelled stream energy conditions within the channel and adjoining floodplain. I stated that I hadn't reviewed the concept report of the current approved diversion but given the relatively proximity to the proposed diversion, the impacts would be of a similar nature. The proposed diversion is however higher in the landscape as will be engaging with the adjacent elevated ridges and relief adjoining the floodplain. This may present other localised issues such as narrowing of the channel boundaries in steeper slopes increasing steam hydraulic conditions. The interception of drainage features along the diversion will require design modifications due to the diversion channel bed level being lower than the bed level of the drainage feature. This was discussed at the meeting with a proposal to alter the drainage feature alignment into the diversion further downstream which is seen as a potential preferred long-term option rather than the current proposed rock lined structure. Further detail should be presented during the design phase and appropriately referenced in engineered drawings.

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Following the meeting, I have further reviewed the current approved diversion concept report and the amended Hatch functional design report and conclude that the current approved diversion has similar stream hydraulic conditions to the proposed diversion. Taking into consideration the information before me, I would consider that the proposed diversion will behave in a similar manner to the approved diversion. While it is not my position to make comparisons whether the environmental impact of the proposed diversion will be significantly different to the current approved diversion, I have provided information that will assist you in answering this question.

Happy to discuss this further, feel free to contact me should you wish.

Regards
Scott Stevens
Senior Project Officer
Central West Region
Department of Natural Resources and Mines

Biloela Research Station

LMB 1 Biloela Q 4715

Telephone:0749929104 Fax: 0749923468
Email:scott.stevens@dnrm.qld.gov.au
www.dnrm.qld.gov.au

Queensland Government

From: CLARKE Liz
Sent: Thursday, 31 March 2016 1:55 PM
To: STEVENS Scott
Subject: RE: Reference to Meeting Notes from last week - Cockatoo Creek Diversion

Hi Scott,

EHP has now received the EA amendment application for the Foxleigh Plains Expansion Project, which includes the realignment of the Cockatoo Creek watercourse diversion. During the pre-lodgement meeting on 2 March 2016 you indicated that, based on the functional design provided by Anglo, the proposed change in alignment of the diversion would not likely result in significantly different environmental impacts as compared to the current approval; and that the realignment is relatively low risk in terms of changes from the current approval. Are you able to please confirm that DNRM is still of this opinion? DNRM's technical advice will assist with EHP's Assessment Level Decision.

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Happy to discuss anything in the meantime.

Kind regards

Liz Clarke
Team Leader (Assessment)
Business Centre (Coal) | Coal and Central Queensland Compliance
Department of Environment and Heritage Protection

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

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At the meeting, I offered the preliminary advice that we undertook a brief review of the functional design report and thus, made comment on issues that were identified and indicated that the functional design report was

comprehensive and appeared to have addressed the criteria under the current watercourse diversion guidelines. We have not undertaken an assessment that we would normally complete if this was an application for a water licence. I am more than happy to provide further advice in respect to the report, please advise as I would be happy to comment if required.

I will be responding to Skye about the meeting notes and particularly the last section about our satisfaction and support of the diversion. Will cc you into the response.

On a side note, I had the understanding that all diversions would require a major EA amendment rather than a minor, can you clarify the approach DEHP is taking with this proposal and is this the intended approach of DEHP in the future?

Finally, good to meet you in person.

Regards

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