Agency Advice on Preferred Project Report and Response to Submissions

October 2013 – February 2015

NSW GOVERNMENT | Department of Primary Industries

31 OCT 2013

OUT13/32425

Ms Jessie Giblett
Mining Projects
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

jessie.giblett@planning.nsw.gov.au
clay.preshaw@planning.nsw.gov.au

Dear Ms Giblett,

NRE No.1 Colliery Underground Expansion Project (MP 09_0013)
Comment on the Response to Submissions Report

I refer to your email dated 2 October 2013 to the Department of Primary Industries in respect to the above matter.

Comment by Fisheries NSW
Fisheries NSW advises that issues raised previously have been addressed by the proponent, but remains concerned about potential impacts of mining in this area.

For further information please contact Scott Carter, Senior Conservation Manager, (Port Stephens Office) on 4916 3931, or at scott.carter@dpi.nsw.gov.au

Comment by NSW Office of Water
The NSW Office of Water notes that the review was considerably constrained given that a new groundwater model is yet to be developed, however provides comment based on impacts predicted by the proponent. These impacts will need to be verified and the project plan refined appropriately once the model is complete and reviewed.

The Office of Water acknowledges that the proponent has modified their proposal substantially in an effort to reduce the potential impacts and risks of continued mining, and that an approval with stringent conditions could be considered.

Key issues identified are listed below, and detailed comment is provided at Attachment A.

(i) The Office of Water requests the opportunity to review the groundwater model and associated peer review report when complete, and that activity not be permitted to commence until this model has been satisfactorily completed, and any necessary modifications to the project plan made to accommodate the modelled impacts.

(ii) The proponent will need to obtain additional licensed entitlement to account for increased inflows.

(iii) The proponent should address the potential impacts that may be caused by planned widening of the longwall panels.

(iv) The proponent should determine the potential leakage from Cataract Reservoir and consult with the Office of Water and the Sydney Catchment Authority on how to account for any leakage.

For further information please contact Hemantha Desilva (Newcastle Office) on 4904 2525, or at: hemantha.desilva@water.nsw.gov.au.

Yours sincerely

Tony Heffernan
A/Executive Director Business Services

Attachment A

NRE No.1 Colliery Underground Expansion Project (MP 09_0013)
Comment on the Response to Submissions and Preferred Project Report
Additional comments by NSW Office of Water

Refinement of numerical model

Numerical computer modelling was undertaken as part of the Environmental Assessment for the original application. That modelling was used to predict the impacts of the originally proposed configuration for both the Wonga East and Wonga West workings. Given the modifications identified within the Preferred Project Report, refinement of the model and the generation of new impact predictions based on the current layout is warranted. The proponent has identified that a new groundwater model will be developed to allow the prediction of impacts based on the new mining plans, however the process is indicated as taking up to 3 months (page 128). This prevents the Office of Water from being able to adequately assess the likely impacts of the proposed mining operation.

Authorisation of groundwater take

The Preferred Project Report indicates that preliminary estimates of mine water make (in lieu of the results of the revised modelling) indicates volumetric inflows of 840 megalitres per year (ML/y) could be expected (page 131). The Office of Water previously advised that the proponent is authorised to extract a volume of 365 ML/y under an existing licence. The Preferred Project Report does not elaborate on the licensing requirements identified in previous agency correspondence, nor does it provide even preliminary advice on the possibility of the proponent obtaining the necessary entitlement for the current or potential future applications. This is despite the Office of Water specifically requiring the proponent to demonstrate an ability to obtain the required entitlement in previous correspondence.

Changes to panel dimensions

It is noted that the changes to longwall dimensions (page 20) have resulted in reductions in maingate pillar widths in some locations (from 60 m to 45 m for LW 6, 7, 9 and 10), and widened longwall panels in other places (from 105 to between 125 and 150 m for LW 1, 2 and 3). Whilst the reduced length of panels is likely to constrain the associated subsidence trough longitudinally, the lateral ground surface settlement effects of multiple parallel longwalls is cumulative and can be substantial. Mining engineering theory suggests that the height of ground displacement is related to the width of the extracted panel, therefore the widening of individual longwalls could result in disturbance of strata at levels closer to the ground surface. Similarly, the height of complete groundwater drainage above the caved zone of a mined longwall is related to panel width. As well, a reduction in pillar size is likely to change the tensional and compressional forces around and above each support, thereby potentially changing the bedding plane separation behaviour and extent within overlying strata. Whilst the Preferred Project Report suggests that the "*longwall dimensions are approximately 25% smaller in Wonga East than the original proposal*", there is no recognition of the potential changes to engineering behaviour within overlying strata as a result of panel widening. In addition, the repositioning of the proposed longwalls could significantly alter stress and strain dynamics within the overlying strata depending on the final panel orientation in relation to the maximum stress direction. Therefore, despite the reduction in overall area of extraction, the localised impacts could be significantly exacerbated due to the changed widths and orientations.

Volumes of water from affected sources

The Office of Water previously advised that additional assessment was necessary to identify the "*potential for the proposed mining to induce connections to the surface water systems*", with particular reference to upland swamps, local creeks and Cataract Dam. The Preferred Project Report has identified that it would be possible to determine the potential leakage from Cataract Reservoir using a probabilistic assessment of a transiently calibrated model (page 129). It has also been identified that such a simulation would require weeks of computer run time for each

individual stage and months for multiple stages, therefore it was not proposed for the initial modelling study but "*could be done at a later stage, if considered necessary*". In order for the proponent to meet the requirements of the Office of Water, as well as those of the NSW Aquifer Interference Policy, this modelling is considered necessary and its commencement should not be deferred until some undefined 'later stage'.

Comment/Options

The application for consent to undertake longwall mining in the Wonga East area could be supported in the absence of the results of new numerical modelling, provided any recommended conditions stringently bind the proponent to the required actions as well as applying specific time frames and deadlines.

In regard to predicted impacts, detailed assessment of the model conceptualisation, structure and adequacy should be undertaken by the Office of Water once the revised modelling has been provided by the proponent.

Notwithstanding the reduced area of mining identified within the Preferred Project Report, there remains a need for the proponent to meet the requirements of the NSW Aquifer Interference Policy.

Recommendations

1. The proponent commit to the further development of a numerical groundwater flow model designed to meet the modelling requirements specified in the AIP.
2. The proponent commit to acquiring sufficient entitlement to account for the volume of estimated water take from all affected water sources.
3. Conditions of consent should be stringently binding on the proponent to meet necessary tasks and deadlines, and incorporate provisions for future changes once the revised modelling has been completed.
4. The proponent should address the potential impacts of the proposed widening of the longwall panels.
5. The proponent be required to determine the potential leakage from Cataract Reservoir.

End Attachment A

NSW GOVERNMENT | Trade & Investment Resources & Energy

OUT15/1713
File No. 15/21

Mr Howard Reed
Manager, Mining & Extractive Industries
NSW Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Reed

Condition 7(h) Schedule 3 of the Russell Vale
Project Approval 10_0045 MOD2: Longwall 6 (365m) Extraction Plan

Russell Vale Colliery requires the Division of Resources and Energy's satisfaction for a series of management plans consistent with Condition 7(h) of Schedule 3 of Project Approval 10_0045 MOD2.

Russell Vale Colliery submitted the document "Russell Vale Colliery Russell Vale East – Longwall 6 (365m) Extraction Plan" on 17 December 2014. DRE assessed the following Plans / Program within that document:

1. Coal Resource Recovery Plan
2. Subsidence Monitoring Program
3. Spontaneous Combustion Management Plan
4. Appropriate revisions to the Rehabilitation Management Plan
5. Built Features Management Plan
6. Public Safety Management Plan

Documents 1 to 4 above meet the requirements of Condition 7(h) of Schedule 3 of Project Approval 10_0045 MOD2.

The Built Features Management Plan meets the requirements of Condition 7(h) of Schedule 3 of Project Approval 10_0045 MOD2 subject to the following condition:

The Electricity Transmission Line Management Plan and the RMS Built Features Management Plans should be endorsed by the respective infrastructure owners.

The Public Safety Management Plan meets the requirements of Condition 7(h) of Schedule 3 of Project Approval 10_0045 MOD2 subject to the following condition:

The stated frequencies of inspections in the Public Safety Management Plan TARP are amended such that inspections are to be carried out in the same manner as previous Longwalls 4 and 5.

Yours sincerely

K Hargreaves 30-1-15

Kylie Hargreaves
Deputy Secretary
Resources & Energy

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Dams Safety Committee
NEW SOUTH WALES
ABN 55 079 703 705

25 October, 2013

Major Projects Assessment
Mining and Industry Projects
GPO Box 39
SYDNEY NSW 2001

Our ref: 10.121.046
Your ref: 10/14905

Attention: Clay Preshaw

Dear Clay,

Preferred Project Report and Response to Submissions
NRE No.1 Colliery – Underground Expansion Project (MP 09_0013)

The Dams Safety Committee has received a copy of the Preferred Project Report (PPR) including Responses to Submissions for NRE #1 Colliery underground expansion. You have asked the DSC for comments on the proposal.

The PPR is for 10 longwalls in the Wonga East mining area. Proportions of these fall within the Cataract Notification Area.

Cataract Dam is a major water supply dam which is prescribed by the Dams Safety Committee. The Committee is currently regulating mining within the Cataract Notification Area which surrounds the Cataract Dam, using its powers under the Dams Safety Act 1978 and the Mining Act (1992). The proposed mining lies partly within the Cataract Notification Area and as such an application to the Dams Safety Committee to mine within the Notification Area will be required.

The DSC's submission on NRE #1's Environmental Assessment for an Underground Expansion Project, contained 15 concerns. The Preferred Project has addressed 12 of these concerns to the satisfaction of the Committee. The three remaining concerns (i.e. Nos. 12, 13 & 14)) deal with the Groundwater Model. The Committee awaits confirmation that NRE will revise the Groundwater Model for the Preferred Project to address the issues raised by the DSC.

Yours faithfully,

S. Knight
Executive Engineer

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NSW EPA

PCU049026

Our reference: EF/3016:DOC13/69609-1:ATC
Contact: Andrew Couldridge (02) 4224 4100

Mr Clay Preshaw
NSW Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Preshaw

SUBMISSIONS REPORT
MAJOR PROJECT APPLICATION
NRE NO 1 COLLIERY – UNDERGROUND EXPANSION PROJECT (MP 09 0013)

I am writing in reply to your electronic request for comment dated 4 October 2013 regarding the Submissions Report for the Gujarat NRE No 1 Colliery – Underground Expansion Project.

The Environment Protection Authority (EPA) has reviewed the Submissions Report and believes that its comments on pit top operations have been substantially addressed.

The EPA will welcome the opportunity to review the subsequent Management Plans required to be prepared under the Project Approval.

Should you require any further information, please contact the above officer on (02) 4224 4100.

Yours sincerely

William Dove 25 october 2013

WILLIAM DOVE
Unit Head Regulation
Environment Protection Authority

(N:\2013\COAL MINES\NRE1-L12040\ATC DOC13/69609-1 RTS NRE NO 1 UNDERGROUND EXPANSION PROJECT.DOC)

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Contact: Katrina Stankowski
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Email: Katrina.Stankowski@heritage.nsw.gov.au
File No: A1691387 & A1691467
Job ID: 10/013221
Your Ref:MP 09_0013

Ms Jessie Giblett
Planning Officer – Mining Projects
Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Ms Giblett

RE: Heritage comments on the combined Preferred Project Report and Response to Submissions Report for the NRE No. 1 Colliery – Underground Expansion Project (MP 09_0013).

I refer to your two emails dated 2nd October 2013 referring the combined Preferred Project Report and Response to Submissions Report for the NRE No. 1 Colliery Underground Expansion Project to the Heritage Council for comment.

It is noted that the Heritage Council has previously provided comment on this project in February 2011 and in February 2013, when the EA was on public exhibition.

The February 2013 correspondence stated that as long as the Applicant adhered to their Statement of Commitments as listed in the EA (*Section 14.4, pg 224,* and the *Statement of Commitments, pg 518)* with regard to mitigation of impacts to any items of cultural heritage, the historic heritage at this site (which relates to the former South Bulli Colliery) would be adequately managed during the lifetime oft his project".

The Statement of Commitments listed in the EA on public exhibition in February 2013 were:

1. A Conservation Management Plan will be prepared for the Project. The plan will reflect the future need of the site as a continuing mine and include procedures to follow for the discovery of unanticipated 'Relics'.
2. No items identified as having heritage value or contributing to the heritage value of the site will be demolished as part of this project.
3. A photographic recording of the 1887 portal and the site will be undertaken and copies will be lodged with the appropriate local and state repositories.
4. A photographic recording of the site should be undertaken, to Heritage Archival Recording standards, prior to commencement of construction for the Project, to provide a lasting record for the site prior to the new development. Copies of the recording should be lodged with the appropriate local and state repositories.
5. Items of moveable heritage, including historical photos, plans, maps, records and the like will be documented, collated and catalogued. Items of moveable heritage will be

retained at their current location on site and documented including historical photos, plans, maps and records to Heritage Archival Recording Standards. A conservator will provide advice regarding the long term storage of items to maximise their survival. When the item has been appropriately catalogued it will be donated to a suitable repository. Appropriate repositories will be identified prior to project works commencing.

6. No secondary extraction will occur beneath or within 1km of the Cataract Dam Wall.

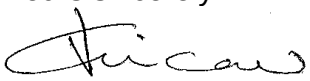
In the Preferred Project and Response to Submissions Report the Applicant has stated that the proposed Statement of Commitments above are unnecessary because "NRE has an existing approved Heritage Management Plan for the Pit Top that incorporates these measures and meets the requirements of the Preliminary Works Pt3A. This plan is updated at the end of each approved longwall and resubmitted for approval for the following longwall".

As Delegate of the Heritage Council this is not considered adequate. This is particularly the case as a number of issues were identified with the draft Heritage Management Plan when it was reviewed by the Heritage Branch of OEH in September 2012. As the plan was never resubmitted for comment, it is unclear whether these issues were dealt with and whether any actions relating to the Applicants original six statement of commitments were included within that plan.

Therefore, it is recommended that if the proposed project is approved, the six original statement of commitments (as listed above), should form part of the approval conditions.

If you have any questions regarding the above advice, please feel free to contact Katrina Stankowski at Katrina.Stankowski@heritage.nsw.gov.au.

Yours sincerely



22/10/2013

Vincent Sicari
Manager – Conservation Team
Heritage Branch
Office of Environment & Heritage
Department of Premier & Cabinet

As Delegate of the NSW Heritage Council

NSW GOVERNMENT | Office of Environment & Heritage

Date 15/11/2013
Ref. DOC13/81259
File FIL13/9778

Ms Jessie Giblett
Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Ms Giblett,

RE: GUJARAT NRE – STAGE 2 UNDERGROUND EXPANSION PROJECT – PREFERRED PROJECT REPORT

I refer to your letter of 2 October 2013 seeking comment from the Office of Environment and Heritage (OEH) on the Preferred Project Report (PPR) for Gujarat NRE No.1 Colliery – Underground Expansion Project. OEH has previously reviewed and commented on the Environmental Assessment for this project and notes that the project has been substantially revised. OEH notes that the PPR addresses a number of issues previously identified by OEH, particularly through the modification of the longwall layout to reduce impacts on upland swamps and streams. However, OEH does not consider that the PPR fully addresses the issues previously identified and therefore recommends the mining plan should be modified further to avoid impacts to these significant natural features (see Attachment A for further detail).

OEH's principal concerns in relation to the PPR are:

- impacts to the Coastal Upland Swamps endangered ecological community (EEC), particularly to swamps of 'special significance'
- potential loss of surface water to deeper storage via mining induced fracture networks
- impacts to threatened species

OEH also notes that further surface and groundwater behaviour/characteristics modelling is yet to be completed. In the absence of this information, OEH requests an opportunity to comment when the additional information is provided.

For further information, please contact James Dawson (Senior Team Leader, Ecosystem and Threatened Species) on james.dawson@environment.nsw.gov.au, or phone 4224 4125.

Yours sincerely

Ben Addison
Regional Manager, Illawarra
Regional Operations Group (South Branch)
Office of Environment and Heritage

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ATTACHMENT A

Office of Environment and Heritage (OEH) review of Gujarat NRE Coking Coal Ltd (NRE) Preferred Project Report for the Major Underground Expansion of NRE No.1 Colliery

Upland Swamps

Impacts to Coastal Upland Swamps endangered ecological community

OEH supports the proponent's identification of upland swamps of 'special significance' in the project area in line with the methodology contained in OEH's draft *Upland Swamp Environmental Assessment Guidelines*. OEH notes that the PPR has modified the longwall layout in the Wonga East domain with the intent of reducing undermining of significant streams and areas of Coastal Upland Swamp endangered ecological community (EEC).

OEH has consistently stated that longwall mining under the Sydney Catchment Authority Special Areas of the Woronora Plateau must meet a performance measure for swamps of special significance of no **negative environmental outcomes**, or **negligible environmental consequence**. OEH considers that all swamps recognised to be of special significance should be protected from the impacts of mining.

Results of monitoring by both BHP Billiton Illawarra Coal (BHPBIC) and OEH in upland swamps undermined by longwall mining in Dendrobium mine on the Woronora Plateau has demonstrated that mining resulted in the fracturing of bedrock beneath a swamp causing:

- a loss of the perched aquifer in the swamps (determined by piezometer monitoring of shallow groundwater levels)
- a loss of water flow at the base of the swamp (determined by V-notch weir monitoring); and
- a loss of soil moisture within the swamp (determined by soil moisture probes)

Impacts of these types alter the ecological function of the upland swamp with a high likelihood of eventual loss of the vegetation communities and habitats that characterise this EEC.

In the response to submissions, Gujarat states that the modified layout will result in an overall reduced risk of impact for upland swamps across the project area. However, OEH notes that all swamps in the Wonga East area, with the exception of CCUS10, have greater predicted maximum strains and tilts compared to the original EA (Table 29, pg 82, PPR). Of the seven swamps identified as "of special significance" the PPR proposes to directly undermine swamps CCUS4 and CRUS1. Gujarat's risk assessment identifies the maximum tensile and compressive strains and maximum tilts predicted for each swamp (valley closure is not included and would be informative). The Bulli Seam PAC (2010) identified subsidence criteria above which swamps may be at risk of negative environmental outcomes. The risk assessment for Wonga East indicates that swamps CCUS4 and CRUS1 will undergo maximum tensile and compressive strains and tilts of between 5 and 18 times these thresholds for all 3 parameters. A further four swamps (CCUS1, CCUS5, CCUS10, CRUS1) will undergo maximum tensile and compressive strains and tilts at least 3 times greater than these thresholds for all 3 parameters.

As a result OEH believes that the amended mining plan will not meet a performance measure of negligible environmental consequence for swamps of special significance, and that significant

impacts to multiple upland swamps in the Wonga East domain are likely. Further amendments to the mining layout should be considered to enable negligible impact criteria to be met.

Although the overall risk to upland swamps may be lower as a result of the removal of the Wonga West domain from the PPR, OEH notes that **none** of the upland swamp EECs in Wonga West are protected from future mining developments.

Flow Accumulation

OEH maintains that Biosis has over emphasised the impact of tilt and flow accumulation modelling when developing risk rankings for upland swamps. The types and level of impacts most frequently observed and of concern for upland swamps in the Southern Coalfields, including bedrock fracturing, is more closely related to physical stresses, strains and upsidence than tilt.

OEH accepts that use of additional information in a multi-criteria analysis may be useful, but has serious concerns that the outcome of subsequent risk assessment is affected by the weightings applied in such a multi-criteria analysis. For example, if flow accumulation is given equal weight to bedrock fracturing in such an analysis, a low flow accumulation criteria could artificially deflate the calculated risk to a particular swamp when the subsidence predictions (both incremental and cumulative) exceed PAC thresholds for bedrock fracturing.

OEH agrees with Biosis that some of these swamps may already have been impacted by previous mining in the area but notes that a comprehensive monitoring and measurement program was not undertaken prior to mining. A more detailed analysis of these potentially impacted swamps is required to gauge both likelihood and consequence (and therefore risk) for upland swamp EECs above the proposed mine plan. OEH suggests that close attention should be paid to piezometer responses at PCc2, PCc5A, PCc6 and PCc3 and that these should be contrasted with piezometer levels in swamps entirely unaffected by mining (ie reference swamps). Although not certain, this experimental data may be sufficient to resolve the question of potential past impacts.

Surface Water

Potential loss of surface catchment water to deeper storage

There appears to be a common, widespread perception in the coal mining industry in the Southern Coalfields that a surface to seam connection, as a result of fracturing, creating a flow path for surface water into deeper storage within the mine, will not or can not occur. There is mounting scientific evidence to suggest that surface and rain water is indeed being lost from upland swamps and streams that supply Sydney's drinking water supply as a result of mining and is potentially making its way into Southern Coalfield mines or lower aquifers. The independent review commissioned by Department of Planning and Infrastructure into this proposal (Coffey 2013) is the latest report to highlight the risk of a surface to seam connection. Other evidence includes Ziegler and Middleton's (2011) analysis of algae in mine and tritium levels in mine inflow water, Heritage Computing's (2012) study of the correlation between rainfall and lagged inflows and Coffey Geotechnics' (2012) study of the potential complete drainage of aquifers above the longwalls, all of which suggest a loss of surface water to the mine network. BHPBIC have recently suggested that approximately 3.2% of total precipitation has moved into "deep storage", which suggests that this too can move into the mine if their deep storage equates to or is connected to the highly fractured goaf areas.

OEH is concerned that the general lack of investigation into the phenomenon in NSW may have led to insufficient consideration of the potential risks in recent mining proposals. There has not been any

quantitative scientific evidence to support the claim that water returns to the surface at an unknown area downstream or into a reservoir. OEH has previously suggested that the loss of perched aquifers in upland swamp EECs, the consequent loss of baseflow to their connected streams and the alteration of groundwater aquifer levels has serious implications for the continued existence of these threatened ecological communities and the threatened species that rely on these habitats. Threatened species of particular concern in these areas are Littlejohn's Treefrog, Giant Burrowing Frog and the Giant Dragonfly. This situation also clearly has the potential to affect catchment yields.

OEH believes a reanalysis of the potential surface to seam fracturing and complete aquifer drainage is required for the PPR since:

- Longwalls 1-3 have increased panel widths (the largest change being for longwall 3 which is increased from 105m to 150m wide – a 43% increase)
- Longwalls 6 to 10 have the pillar widths reduced from 60m to 45m
- Longwall 11 has the pillar width reduced from 60m to 40m.

All these changes (Table 4 of the PPR) are likely to lead to greater subsidence in some areas of the modified mine plan for Wonga East, although OEH acknowledges that subsidence will be lower in some areas as a result of the elimination of other longwalls. How these changes in mine layout interact with upland swamp EECs and potential aquifer draining have not been fully considered in the PPR.

Cataract Creek and its tributaries

Alteration of the natural flow regimes of streams is recognised as a major factor contributing to loss of biological diversity and ecological function in aquatic ecosystems (NSW Scientific Committee 2002). The PPR states (2.2.9.3) in regard to current mining beneath a Cataract Creek tributary that that NRE "*will continue to monitor CT1 tributary flow, water levels and water chemistry as LW5 passes beneath the tributary to clearly identify impacts that mine subsidence may have. There may be some effects on surface flow volumes but little impact on discharge into Cataract Creek*". No evidence is presented to support this hypothesis and OEH contends that it is possible that some of the surface water will not re-emerge downstream.

Longwalls 1-3 will also undermine tributaries of Cataract Creek, one of which is predicted to experience valley closure between 350-650mm (Table 48). The PPR states that valley closures are likely to result in bedrock cracking and surface flow diversion and that this may result in decreased inflow in Cataract Creek and an increase in iron seepage. OEH considers Cataract Creek to be of special significance due to its ecological and biodiversity values, including as habitat to a number of threatened species. Given the interconnected nature of a creek and its tributaries, and the potential for impacts to extend up or downstream of the initial impact area, impacts to water quantity and quality along the entire stretch need to be assessed as a whole.

The PPR states that "*previous experience of mining under the Bald Hill Claystone outcrop in Cataract Creek indicates that there have not been any significant long term effects on the bed of the creek or the character of the creek despite LW11 in the Balgownie Seam causing the creek bed to subside 1.4m*". OEH is not aware of any baseline monitoring that was undertaken prior to mining in the area to support this claim.

In relation to this issue it is worth reflecting on the following points that were made by the Bulli Seam PAC on the issue of impacts of longwall mining to streams.

1. ***The Panel does not subscribe to streams being represented as a series of discrete features in the landscape.*** *Streams form a connected linear network. Many stream values depend on the recognition of the stream system as a continuum with the value of any segment heavily dependent on what happens up and downstream and in higher and lower order components of the system. Protecting the values of streams from impacts that are broad in scale will rarely require intervention only at a series of discrete locations – it is more likely to require some form of intervention or control throughout the interconnected linear network.*

2. ***In the remote areas of sandstone gorges to the east and south of the Study Area, the Panel's assessment finds that much of the value of the stream network is closely associated with its natural characteristics and its pristine setting.*** *Values relying on 'naturalness' have two distinguishing traits:*

    - *Even small impacts can have major consequences for naturalness values. The response is non linear with a major threshold at very low levels of impact.*

    - *Even with appropriate remediation, recovery of naturalness values has a long hysteresis and may in fact be irreversible. Reliance on remediation as a primary risk management option does not recognise this trait*

Threatened Species

Fish Monitoring

OEH previously recommended that a monitoring and management program be developed with Fisheries NSW in regard to Macquarie Perch, Trout Cod and Murray Cod in Cataract Creek. This has not been addressed in the PPR or response to submissions.

Giant Dragonfly

OEH previously recommended that survey for the threatened Giant Dragonfly (*Petalura gigantea*) be undertaken. This has not occurred. In the Response to Submissions, CRUS1 was identified as likely habitat for this species and that the alteration of Wonga East longwalls has removed the threat to this species. OEH does not agree with this statement. Despite the revised mine plan, CRUS1 is still predicted to experience levels of subsidence which will have the potential to result in bedrock fracturing and loss of shallow groundwater. OEH believes that the species may occur in other swamps and targeted surveys are appropriate to understand the spatial distribution of the species in the area so that impacts can be identified and avoided.

Our Ref: STH09/02236/09
Contact: Andrea Boes 4221 2771
Your Ref: MP 09_0013

Transport Roads & Maritime Services

Department of Planning & Infrastructure
GPO Box 39
Sydney NSW 2001

Attention: Jessie Giblett

WOLLONGONG CITY COUNCIL – MAJOR PROJECT APPLICATION MP 09_0013 – NRE NO.1 COLLIERY UNDERGROUND EXPANSION PROJECT – PPR & RTS

Dear Sir

Reference is made to your email of 2 October 2013 regarding the Preferred Project Report and Response to Submissions forwarded to Roads and Maritime Services (RMS) for consideration.

RMS has reviewed the submitted information and is unable to make an informed comment on the proposal. In this regard, RMS provides the following comments:

- RMS notes that a revision of the impact assessment is currently being carried out to account for the amendments made to the subject proposal including the reduced life of the project from 18 years to 5 years. RMS will review this report when it is provided. An electronic copy of the SIDRA analysis should be forwarded to RMS for review.
- RMS requests that the proponent provide information regarding the truck configurations to be used, including axle loadings and the additional equivalent standard axle loadings.

RMS will reconsider the project application once the above issues are addressed to its satisfaction. If you have any questions please contact Andrea Boes on 4221 2771.

Yours faithfully

22 OCT 2013

Rob Reynolds
Road Safety and Traffic Manager
Network Management, Southern Region

Cc – The General Manager, Wollongong City Council (via email)

Our Ref: STH09/02236/10
Contact: Jayd Marsh – 4221 2561

Transport Roads & Maritime Services

PCU53530

The General Manager
Department of Planning & Infrastructure
GPO Box 39
Sydney NSW 2001

Attention: Jessie Giblett

DEPARTMENT OF PLANNING & INFRASTRUCTURE – MAJOR PROJECT APPLICATION MP 09_0013 – NO.1 COLLIERY UNDERGROUND EXPANSION PROJECT – PPR & RTS

Dear Madam,

Reference is made to additional information received on 11 April 2014 regarding major project application MP09_0013 – No.1 Colliery Underground Expansion Project (UEP).

Roads and Maritime Services (RMS) has reviewed the submitted information and notes that there is an increase of approximately 33 Passenger Car Units (PCU's) per hour (one way). RMS does not consider that this increase in traffic generation would have a significant impact on the operation and performance of the main road network. Based on this, Roads and Maritime has no objections to the application in principle subject to any technical implications regarding subsidence being referred to the Wollongong Coal RMS Longwall Mining Technical Committee.

RMS highlights that Bellambi Lane is now a local road under the care and control of Wollongong City Council. On this basis RMS has not considered any noise implications associated with the modifications on sensitive receivers on, and near Bellambi Lane.

Upon the Department's determination of this matter, it would be appreciated if the Department could forward a copy of the Notice of Determination to RMS within the appellant period for advice and consideration.

Adam Berry
Network and Safety Manager
Network Management, Southern Region

28 MAY 2014

Department of Planning
Received
30 MAY 2014
Scanning Room

CC – The General Manager, Wollongong Council (via email)
- Dianne Munro, Hansen Bailey

SYDNEY CATCHMENT AUTHORITY

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Our Ref: D2013/101606

Mr Howard Reed
Manager Mining Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Clay Preshaw

Dear Mr Reed

ENVIRONMENTAL ASSESSMENT OF NRE NO. 1 COLLIERY STAGE 2 UNDERGROUND EXPANSION PROJECT APPLICATION NO. MP 09_0013

I refer to your Department's e-mail dated 2 October 2013 requesting comments on the NRE No. 1 Colliery Stage 2 Underground Expansion Preferred Project Report (PPR), which includes the Response to Submissions (RTS). You have also requested comments about whether the documents have addressed the issues raised in the SCA's earlier submission on the project.

The SCA has reviewed the PPR and its submission is attached. In summary, while the current proposal has addressed some of the SCA's concerns, significant issues remain. **We object to the proposal as it currently stands, particularly with regard to its incursion into the Dams Safety Committee Notification Area surrounding Cataract Reservoir.**

The SCA notes that the PPR proposes changes to the original proposal including:

1. Wonga east longwall layout has been modified.
2. Wonga west longwalls have been removed and are proposed to be revised and resubmitted as a separate application at a later date.
3. Wonga Mains driveage is proposed not to extend northwards under the south arm of the Cataract Reservoir through the known geological feature (in the Bulli seam).
4. The western Balgownie and western Bulli seam first workings have been removed from this application.

The PPR proposes to mine Wonga east longwalls only with changes to the longwall (LW) lengths, widths, position and/or alignment and LW8 has been removed. The SCA notes that the changes to Wonga east mine layout include a reduction in the length of longwall panels in both mining areas, an increase in the panel width of Area 1 longwalls and a reduction in the main gate pillar width in Area 2.

The PPR provides a revised assessment on subsidence, biodiversity and geological structures. The PPR states that the ground and surface water impacts will be determined on the outcome of surface and ground water re-modelling currently being undertaken. It further states that the ground and surface water impacts will vary due to the modification to the Wonga east layout.

The SCA has adopted a set of principles that underpin its decision making in relation to mining activities in the Special Areas. These have been communicated to Gujarat NRE and to Department of Planning and Infrastructure on previous occasions and are repeated in the attached suubmission. The SCA has also developed performance measures for natural and built features of interest to the SCA for this project which is included in our submission. The SCA has assessed the proposed mining proposal and associated information contained in the PPR against its mining and coal seam gas principles and performance measures.

The SCA has major concerns about the lack of detailed geological investigations. The SCA also has major concerns with regards to induced leakage from the Cataract Reservoir and longwall mining within the Cataract Dam Safety Committee (DSC) notification area. These concerns were highlighted in our earlier submission on the project and in subsequent correspondence.

While the proposal has been modified, and some further information is available, the preferred project does not fully address the issues raised by the SCA. **We therefore continue to object to the proposal in its current form.**

The SCA's primary concerns, based on revised information on geological structures and subsidence assessment and as outlined in this submission, relate to the potential impacts on Cataract Reservoir, Cataract River, Cataract Creek and associated tributaries, swamps and cliffs. Of particular concern is:

- The potential loss of stored waters from Cataract Reservoir to underground mine workings at the upper arm of Cataract Reservoir as a result of mining induced leakage.
- The impact on the environment of Cataract Creek and associated tributaries, swamps and dependent ecosystems as a result of the loss of stream flow, reduction in base flows, increased acidification and iron precipitation, and the reduction in shallow water tables affecting swamp vegetation and significant impacts to the "*Special Significance*" upland swamp CCUS4.

In light of our objection to the revised proposal, **the SCA recommends:**

1. **The DSC Notification Area around Cataract Reservoir be adopted as an Exclusion Zone where no longwall mining is permitted (the SCA is in particular concerned about the significant extension of Longwall 7 into the DSC notification area).**
2. **The proposed adaptive management approach proposed for mining activities not be used due to the lag time for mining-related impacts to manifest and changes required to be implemented.**
3. **The SCA's performance criteria developed for the proposed mining area be adopted.**

It should also be noted that the SCA may have further comments on the PPR depending upon the findings of the yet to be completed ground and surface water assessments. As such, the SCA requests the opportunity to continue to be involved in any ongoing assessment of the application.

I would like to meet with the Department to further discuss the SCA's objection to the revised proposal and our specific concerns as highlighted in our submission. Further queries about our submission can be directed to Malcolm Hughes, A/Senior Manager Sustainability, who can be contacted on 4724 2452 or via e-mail malcolm.hughes@sca.nsw.gov.au.

Yours sincerely

FIONA SMITH
A/Chief Executive

6.11.13

Encl. *SCA submission - NRE No.1 Colliery Underground Mining Expansion Preferred Project Report*

SYDNEY CATCHMENT AUTHORITY - SUBMISSION

TRANSITIONAL Part 3A PROJECT

NRE No. 1 COLLIERY UNDERGROUND MINING EXPANSION for ASSESSMENT OF THE PREFERRED PROJECT REPORT INCLUDING RESPONSE TO SUBMISSIONS

OCTOBER 2013

1. LOCATION OF MINING AREA & RELATIONSHIPS TO SCA AREAS OF INTEREST

The areas of interest to the SCA and the reasons for its interest are summarised below:

- The entire proposed mining area is located under land managed as Schedule 1 Special Area.
- LWs 6 to 11 are located under land owned by the SCA.
- LWs 6 to 11 are partially located within the Dam Safety Committee (DCS) notification area of Cataract Dam, and have the potential to induce leakage from the reservoir into mine workings with the possible significant loss of stored water.

2. THE SCA'S PRINCIPLES FOR MANAGING MINING AND COAL SEAM GAS IMPACTS

The SCA has since early 2012 adopted a set of principles that underpin its decision making in relation to mining and coal seam activities in the Special Areas. These principles establish the outcomes the SCA considers as essential to protect the drinking water supplies to the four and half million people of Sydney and the surrounding region.

1. ***Protection of water quantity***
   Mining and coal seam gas activities must not result in a reduction in the quantity of surface and groundwater inflows to storages or loss of water from storages or their catchments.
2. ***Protection of water quality***
   Mining and coal seam gas activities must not result in a reduction in the quality of surface and groundwater inflows to storages.
3. ***Protection of human health***
   Mining and coal seam gas activities must not pose increased risks to human health as a result of using water from the drinking water catchments.
4. ***Protection of water supply infrastructure***
   The integrity of the SCA's water supply infrastructure must not be compromised.
5. ***Protection of ecological integrity***
   The ecological integrity of the Special Areas must be maintained and protected.
6. ***Sound and robust evidence regarding environmental impacts***
   Information provided by proponents, including environmental impact assessments for proposed mining and coal seam gas activities must be detailed, thorough, scientifically robust and holistic. The potential cumulative impacts must be comprehensively addressed.

3. PERFORMANCE MEASURES

The SCA has adopted a risk management approach to assess this mining proposal and developed specific performance measures required for key aspects of interest to the SCA in the proposed mining area. The SCA therefore recommends that the proponent should ensure to the satisfaction of the Director-General that the project does not cause any exceedance of the performance measures identified in Table 1.

Table 1: Subsidence Impact Performance Measures

Water Storages	
Cataract Dam	Zero subsidence and zero impact Always safe and serviceable
Cataract Reservoir	Negligible environmental consequences including: • negligible reduction in the quantity or quality of surface water inflows to the reservoir, • negligible reduction in the quantity or quality of groundwater inflows to the reservoir, • negligible increase in the quantity of water entering the groundwater system from the reservoir, and • negligible leakage from the reservoir to underground mine workings. No connective cracking between the reservoir surface and the mine.
Watercourses	
Cataract Creek Cataract River	Negligible environmental consequences including: • negligible diversion of flows or changes in the natural drainage behaviour of pools, • negligible gas releases and iron staining, • negligible increase in water cloudiness, • negligible increase in bank erosion, and • negligible increase in sediment load.
Swamps	
Swamps identified in the PPR as being of "*Special Significance*"	Negligible environmental consequences including: • negligible change in the size of swamps • negligible erosion of the surface of swamps • negligible change in the functioning of swamps • negligible change to the composition or distribution of species within swamps, and • negligible drainage of water from swamps, or redistribution of water within swamps.
All other swamps mapped in the PPR	No significant environmental consequences beyond predictions in the EA.
Land	
Cliffs	Minor environmental consequences (that is occasional rockfalls, displacement or dislodgement of boulders or slabs, or fracturing, that in total do not impact more than 3% of the total face of such cliffs within any longwall mining domain).
Biodiversity	
Threatened species, threatened populations, or endangered ecological communities	Negligible environmental consequences

4. SCA's ASSESSMENT

The SCA has reviewed the Preferred Project Report (PPR) including the Response to Submissions (RTS) and considers the overall information in the PPR is more transparent and takes into consideration the complexity of the mining proposal and area. Nevertheless, there is still a lack of information in the PPR, as well as a number of uncertainties.

The main issues of concern to the SCA, based on the information provided in the PPR including the review of geological structures and revised subsidence predictions, are:

- potential induced leakage from the Cataract Reservoir
- environmental consequences including water quantity and quality of Cataract Creek and associated tributaries, swamps, cliffs and dependent ecosystems.

These concerns were highlighted in the SCA's earlier submission on the project and in subsequent correspondence. Details of the SCA's continuing concerns about the potential impacts and environmental consequences of the PPR, as well as the SCA's response to the RTS, are outlined below.

4.1 Assessment of the Preferred Project Report

Review of Geological Structures

The PPR provides a detailed review of the geological structures in the Wonga east area through comparison and analysis of coincident structures on mine plans between the Bulli, Balgownie and Wongawilli seams, and surface geology (using ground truthing, Lidar topographic data and aerial photography). The review has identified seven faults and 15 dykes (vertical igneous intrusions) as well as sills (horizontal igneous intrusion) within the Wonga east area. The Corrimal fault (F1) and dykes D8 and D10 have been identified as intersecting the PPR mining area. The SCA considers that an unnamed fault associated with dyke D7 is likely to be intersected in mining Area 1, which is overlain by a second order perennial tributary of Cataract Creek. No information in relation to this fault has been provided in the PPR. The SCA also understands that the Rixon Pass fault is approximately where the lineament of dyke D8/D7 is located.

The SCA considers that whilst previous mining in the upper seams (Bulli and Balgownie) provide some insights into the location, character, nature, strike and dip of the geological features, there are still uncertainties on the spatial extent of some of the geological structures, particularly where no mining activity is undertaken. The SCA is concerned that there has been no drilling undertaken to confirm the full extent of the Corrimal fault in the northwest and possible reactivation of the fault and dyke D8 and/or connection with Cataract Reservoir. The SCA considers that the following concerns need to be addressed:

- Fault F1 (Corrimal Fault) strikes approximately northwest-southeast and dipping to the east and potentially extends northwest and intersects the southwest ends of proposed LW6 and LW7. It is likely that it will also intersect the confluence of the Cataract River and Cataract Creek. In addition, because of the close proximity of the southwest ends of LW6 and LW7 to the full supply level of Cataract Reservoir, there could be hydraulic connection between the workings and the stored water. There is also the potential for change in hydraulic conductivity or reactivation of dyke D8 as a result of mining LWs 6 and 7, and the potential again for hydraulic connection between the reservoir and the mine workings, particularly near the confluence of Cataract Reservoir and Cataract Creek. The potential for such hydraulic connections needs to be investigated so the potential impacts on the stored water can be assessed.

- Several other geological structural features are located in the proposed mining area. These geological factors, plus the small depth of cover separating the three seams, could compromise the stability of the remnant pillars in the overlying seams and could adversely impact the pillars of the proposed mining area in the Wongawilli seam. An assessment of the stability of the remnant pillars needs to be fully assessed, taking into consideration all geological features in the area as well as the previous and proposed mining activities.
- It appears from a Seismology Map – Cataract Dam Area (Drawing No. G 75-61-1 S 3426; dated 19/5/81) prepared by Metropolitan Water Sewerage & Drainage Board that the Rixon Pass fault (F4) is approximately where the lineament of dyke D8/D7 is located. It is possible that dyke D8/D7 intruded into this fault. The MWSDB map also indicates that the Rixon Pass fault is a normal gravity fault with its downthrown block in the south forming a graben structure with the downthrown block of Corrimal fault. The location of this fault needs to be validated so its implications can be adequately assessed.

Subsidence Predictions

SCT Operations Pty Ltd (Appendix B of the PPR) has revised the subsidence predictions, including for LWs 4 and 5, and are reported to be based on previous subsidence monitoring from mining in the Bulli (over longwall panels to the west), Balgownie and Wongawilli seams. Tilts and strains are predicted using the incremental subsidence approach by Holla and Barclay (2000) whilst maximum closure is predicted using the ACARP method by Waddington and Kay (2003). The subsidence assessment report (SCT 2013) has also recommended:

- confirmation that there are no geological structures with potential to provide elevated hydraulic conductivity between the reservoir and the mining horizon and that any such structures will not be adversely affected by mining.
- monitoring the mine water balance to confirm the magnitude of any flows that occur and a review of the integrity of the mine water balance to confirm that all sources of water are accounted for, in particular that there is no unaccounted loss of water into inaccessible storage deeper in the mine or into adjacent mines.
- groundwater monitoring in areas where there are multiple goafs stacked above each other and in the area between the reservoir and the mine would increase confidence in understanding the impacts of mining on the groundwater system. The design of this monitoring would need to be done in consultation with the DSC.
- a program of work to test the hydraulic conductivity of the dyke.

The SCA notes that the revised subsidence predictions are higher than previous predictions, in particular tilts, strains and closure values which determine consequences on natural features including watercourses and swamps. It is also noted that LW4 vertical subsidence has increased as a result of LW5 extraction. While the actual measured vertical subsidence for LWs 4 and 5 are presently less than the revised subsidence predictions, the SCA considers it highly likely that the actual vertical subsidence of LW5 will surpass the revised predicted values if LW6 and others are mined.

The PPR considers that there is some potential for pillar instability in the Bulli Seam to cause additional surface subsidence (up to about 0.7m) when the proposed longwall panels are mined in the Wongawilli seam, and the area likely to be affected at the northern end of LW1 is not predicted to cause significant surface subsidence or significantly greater surface impacts.

The SCA considers that the revised subsidence predictions are more transparent and have attempted to take into consideration the complexity of the mining proposal and area. However, there are still uncertainties with regards to the behaviour of faults and

dykes present within the proposed mining area resulting in uncertainties for the subsidence predictions. The reliability of subsidence predications are critical for the assessment of all other impacts and environmental consequences, including on surface and groundwater resources, key features on watercourses (such as pools and rock bars), swamp ecosystems and landscape features like cliffs. A comprehensive assessment of the behaviour of all faults and dykes in the proposed mining area needs to be undertaken and considered in revised subsidence predictions to enable a greater level of confidence in such predictions.

Impacts on Cataract Reservoir

The water quantity of Cataract Reservoir can be impacted due to reduced baseflows and reduced catchment yield to the reservoir and induced leakage from the reservoir. Given the unavailability of the revised ground and surface water assessment, this submission focuses on the impacts to the reservoir from induced leakage only.

The PPR considers it is extremely unlikely that the existence of fault or dyke structures in the Wonga east mining area will cause hydraulic connection between the mine and reservoir, or reactivation of faults or dykes as a result of subsidence. The SCA notes that Wonga east longwalls underlie both the previously bord and pillar mined Bulli seam and the longwall mined Balgowine seam. Area 2 longwalls 6 to 11 are partially located within the DSC Notification Area and in close proximity to Cataract Reservoir. The SCA in its previous submission has recommended the DSC Notification area around Cataract Reservoir to be adopted as an exclusion zone where no mining is permitted. However, the PPR states that mining within the DSC notification area in Wonga east (i.e. Area 2 LWs 6 to 11) cannot be operationally avoided and any mining within the Notification Area will require approval by the DSC.

The PPR predicts that Cataract Reservoir is not expected to be impacted by the proposed mining. The full supply level (FSL) for the reservoir, including the section that extends up Cataract Creek, is reported to be protected by a horizontal distance of greater than an angle of draw of 35° (equivalent to 0.7 times overburden depth) from the nearest longwall goaf. Vertical subsidence at the FSL is predicted to be less than 20mm. The 0.7 times depth (nominally 203m) stand-off from the FSL is proposed as a primary control for protecting the stored waters of Cataract Reservoir and the PPR states that this barrier is expected to provide a high level of protection to the stored water.

Furthermore, the PPR states that there are also a number of small pre-existing Bulli seam goaf areas that are located within the 0.7 time depth protection zone around FSL. The largest of these goaf areas are located within 80m of the FSL at an overburden depth of Bulli seam of approximately 260m. The PPR considers it unlikely that the proposed mining will interact with these pre-existing goaf areas and does not consider there will be any connection between the reservoir and the mining horizon. On the other hand, the Subsidence assessment report (SCT 2013) states that the Wongawilli seam, the Balgownie seam, and the Bulli seam are all hydraulically connected near LWSs 7-9 through the interconnected goafs and that is why the 0.7 times depth offset between the longwall panels and the FSL has been designed as the primary control, and is predicted to be effective to control potential inflow from Cataract Reservoir into the mine. The PPR also states that the presence of these goafs reduces the effectiveness of the 0.7 times depth barrier between the FSL and the proposed mining of LWs 7-9. **These statements are of significant concern to the SCA and do not provide confidence that 0.7 times depth stand-off from the FSL can be used as an effective primary control for protecting the stored waters of Cataract Reservoir in this complex mining environment.**

As previously mentioned, the SCA is concerned about the presence of the Corrimal fault and dyke D8 near LWs 6 and 7 and that there has been no drilling undertaken to

confirm the full extent of the Corrimal fault or potential for change in hydraulic conductivity or reactivation of these geological features and possibility of connection with Cataract Reservoir. Given the uncertainties and limited information, **the SCA reiterates its previous concern that if a connection between mine workings and stored water occurs, there is the potential for substantial stored water to be lost to the mine. The SCA also reiterates its previous advice that the DSC notification area around Cataract Reservoir should be adopted as an Exclusion Zone where no longwall mining is permitted.**

Impacts on Cataract Creek

Approximately 300 to 600mm valley closure is predicted for the Cataract Creek tributary over LWs 1-3. Valley closures are predicted to cause bed cracking and surface flow diversion in the upper reaches of the Cataract Creek tributary. The PPR states that this may result in decreased inflow into Cataract Creek and an increase in iron seepage at the base of these tributaries. Increases in iron flocculent is predicted to have the potential to smother eggs of Macquarie Perch and result in changes in water quality, whilst reduced flows into Cataract Creek have the potential to reduce the quality of Macquarie Perch habitat and result in changes to the community composition of macroinvertebrate communities.

The PPR states that further downstream above LWs 2 and 3 where the creek will not be directly mined under, the bed of the stream is located mainly in Bald Hill Claystone and only low levels of impact are predicted. The PPR further states that previous experience of mining under the Bald Hill Claystone outcrop in Cataract Creek indicates that there has not been any significant long term effects on the bed of the creek or the character of the creek despite LW11 in the Balgownie Seam causing the creek bed to subside 1.4m. **The SCA understands there has not been any baseline monitoring of Cataract Creek undertaken for comparison during past mining activities in the area, and therefore considers it is presumptive to suggest that there has not been any impact on the creek.**

The PPR proposes an adaptive management strategy based on closure monitoring and cessation of mining if there is a likelihood of significant impacts becoming apparent on Cataract Creek. The PPR states that the experience in Hawkesbury Sandstone river channels indicates that there has been not been a **total loss** of surface flow in major river channels where valley closure is less than 200mm. Therefore by adopting a TARP system based on maintaining closure to less than 200mm, the PPR anticipates that the potential for loss of surface flow can be managed. The SCA is concerned about the significantly high closure values of 200 to 600mm for Cataract Creek and its tributaries from mining of Wonga east longwalls. Therefore **the SCA reiterates its previous position that it does not support the adaptive management approach proposed for mining activities given the lag time for mining-related impacts to manifest and changes required to be implemented.**

The SCA considers that the proposal must meet the SCA's performance criteria, including that of negligible environmental consequences on features of special significance such as Cataract Creek, should be adopted.

Impacts on swamps

The PPR states that individual swamps cover large areas and some are discontinuous in nature therefore the subsidence prediction is challenging due to the large area of some swamps and relatively large change in subsidence parameters such as tilt and strain over short distances. Maximum predicted tensile strains range from 9.2 to 9.4mm/m and maximum compressive strains range from 18.5 to 19.0mm/m over upland swamps CCUS2, CCUS4, CCUS6, CCUS11 and CCUS21.

Generally it is considered that when strains are greater than approximately 1-2mm/m in tension and 2-3mm/m in compression, fracturing of the sandstone strata below swamps is expected. The revised predictions for strains are well above these values for upland swamps CCUS1 to CCUS6, CCUS10 to CCUS12, CCUS23 and CRUS1. The PPR states that the predicted changes from the proposed mining are sufficient to cause significant impacts to the rock strata and to the surface and near surface water flows in the areas directly mined under. Upland swamp CCUS4 and a small section of CRUS1 will be directly undermined by LW6 and a small section of CCUS5 will be undermined by LW7. All these three upland swamps meet the criteria of 'Special Significance' in accordance with the draft Upland Swamp Environmental Assessment Guidelines (OEH 2012). The upland swamp CCUS4 is predicted to be at moderate risk and a significant secondary impact.

The SCA has concerns for the impacts of the proposed mining on the upland swamps overlying or in close proximity to the mining area particularly upland swamp CCUS4. The swamps have the potential for enhanced leakage therefore changed hydrology. The dewatering and drying of swamps due to subsidence fracturing of the bedrock increase the erosion potential of swamps and reduce base flows to creeks, particularly during drought conditions. The SCA considers that the subsidence impacts and environmental consequences of swamps, unlike watercourses, are not immediately known and it may take a few years until swamp impacts become apparent. Therefore the SCA reiterates its previous position that it does not support the adaptive management approach proposed for mining activities given the lag time for mining-related impacts to manifest and changes required to be implemented. Accordingly, the SCA considers that the SCA's performance criteria of negligible environmental consequences on upland swamps of special significance, including CCUS4, should be adopted.

Cliffs

Subsidence predictions for cliffs over LW9 indicate the potential for tensile cracking and collapse of the rock strata that are likely to occur where horizontal compression exceeds 50-100 mm per 20 m length of cliff formation. Minor rock falls are expected on up to 5 percent of the length of sandstone cliff formations that are mined directly beneath. **The SCA recommends that the SCA's performance criteria of minor environmental consequences for cliffs be adopted.**

CONCLUSION

The SCA's assessment has identified that the proposed mining proposal has the potential to impact on water quantity and water quality of Cataract Reservoir and Cataract Creek. Considering the SCA's mining and coal seam gas principles and performance measures developed for the proposal, the SCA continues to object to the proposal in its current form.
In light of this objection, the SCA recommends that:

1. **The DSC Notification Area around Cataract Reservoir be adopted as an Exclusion Zone where no mining is permitted (the SCA is in particular concerned about the significant extension of Longwall 7 into the DSC notification area).**
2. **The proposed adaptive management approach for mining activities not be used due to the lag time for mining-related impacts to manifest and changes required to be implemented.**
3. **The SCA's performance criteria developed for the proposed mining area be adopted.**

4.2 SCA's Comments on Response to Submissions Report

SCA comment	NRE Response	SCA response
There is a concern that there may be a loss of stored waters from Cataract Reservoir to the mine workings at the upper arm of Cataract Reservoir as a result of mine induced leakage. The SCA requires that the Cataract Reservoir Notification Area be adopted as a no mining area. If mining is approved via the Pt3A process in this zone no mining can commence until a DSC approval has been received.	The adoption of the Cataract Reservoir Notification Area as a no mining zone will render Wonga east non-viable. The revised layout for Wonga east is partially within the Notification Area but outside the 35 degree angle of draw from the stored waters. NRE believes that this provides an adequate buffer from the Reservoir and that any remaining issues of a technical nature can easily be resolved as part of an application for DSC approval.	SCA reiterates its previous concern that if a connection between mine workings and stored water occurs, there is the potential for substantial stored water to be lost in the mine. The SCA reiterates its previous advice that the Dams Safety Committee Notification Area around Cataract Reservoir should be adopted as an Exclusion Zone where no mining is permitted.
The SCA believe that the reduced baseflow to streams and the Cataract Reservoir as a result of subsidence cracking, leakage and groundwater depressurisation is a source of concern as baseflow contributes 35% of average annual inflow during drought periods when surface runoff is considerably reduced. This may lead to reduced catchment yield which is potentially very important during periods of low flows. Therefore: - there must be no change in the extent or duration of stream connectivity in low flow conditions; - the average annual baseflow from Cataract catchment must not be reduced by more than 10% or 100ML/yr, whichever is the lesser; - additional down gradient boreholes be installed in Wonga East; and - the groundwater model must be updated and improved as more data becomes available.	Catchment surface water and groundwater are being remodelled in accordance with DPI directions. This information will be available within 3 months.	The SCA will await the outcome of surface and groundwater re-modelling and assessment. No approval should be given in advance of receipt of this information.

Comprehensive geological investigations have still not been undertaken for the proposed mining areas and the potential impacts of geological structures in Wonga East have not been addressed	A full geological assessment of the Wonga east area has been included in the PPR. This geological assessment has been considered in the subsidence calculations for the new Preferred Project layout in Wonga East.	No drilling has been undertaken to confirm the full extent of the Corrimal fault in the northwest and possibility reactivation of fault and dyke D8 and/or connection with Cataract Reservoir. The location of Rixon fault needs to be validated.
All comments related to groundwater modelling, assessment and predictions	Catchment surface water and groundwater are being remodelled in accordance with DPI directions. This information will be available within 3 months.	The SCA will await the outcome of surface and groundwater re-modelling and assessment. No approval should be given in advance of receipt of this information.
There are no groundwater monitoring bores down-gradient in Wonga east.	There are no current or proposed groundwater monitoring bores down-gradient in Wonga east.	The SCA considers there shall be groundwater monitoring down-gradient of Wonga east mining area.
Comments related to subsidence predictions, accuracy and assessment.	The subsidence prediction technique used has been updated to reflect the available data. The revised approach is based on using the available data to provide insight in the subsidence mechanics and continuing to develop this understanding recognising the various subsidence processes involved. The results of this previous monitoring indicate that, although the magnitude of subsidence is greater in a multi-seam environment where there has been previous subsidence of the overburden strata because of the lower shear stiffness of previously disturbed strata, the subsidence behaviour in a multi-seam environment is essentially to single seam subsidence in its general characteristics. There are some subtle differences but these are second order effects and do not change the general characteristics. Another difference is that there is potential for pillar instability in areas of standing pillars in overlying seams in some areas and this potential needs to be recognised.	The SCA considers there are still uncertainties with regards to the behaviour of faults and dykes present within the proposed mining area resulting uncertainties for the subsidence predictions. The reliability of subsidence predications are critical for the assessment of all other impacts and environmental consequences, including on surface and groundwater resources, key features on watercourses such as pools, rock bars, swamps ecosystems and landscape features like cliffs. The uncertainty of subsidence predictions still remain.
The catchment yield modelling was based on the Loddon River and Bellambi Creek catchments which won't be undermined and the model does not have sufficient low flow	Catchment surface water and groundwater are being remodelled in accordance with DPI directions. This	The SCA will await the outcome of surface and groundwater re-modelling and assessment. No approval should be given in advance of receipt of

data to allow for accurate water loss predictions.	information will be available within 3 months.	this information.
The EA predicts the potential for cracking of the bed of Cataract Creek. The SCA disagrees that any water lost subsurface will re-emerge further downstream as this has not been proved to its satisfaction. The experience in Waratah Rivulet seems to indicate that the fracture network below creeks is deeper than predicted leading to at least partial water loss.	Catchment surface water and groundwater are being remodelled in accordance with DPI directions. This information will be available within 3 months.	The SCA will await the outcome of surface and groundwater re-modelling and assessment. No approval should be given in advance of receipt of this information.
There is significant concern that the undermining of Cataract Creek cannot be adaptively managed to prevent more than 250mm of subsidence or pillar run due to multi-seam mining issues. Remediation of damaged waterways is not considered an effective option to repair any impacts to the creek in order to restore habitat and it is noted that NRE has not committed to undertake remediation should impacts occur. As a result, NRE must not undermine Cataract Creek.	NRE has modified its Wonga east longwall layout to avoid mining beneath Cataract Creek. NRE does commit to rehabilitation measures should unacceptable impacts occur to Cataract Creek. Offsets are already required by Condition 3, Schedule 3 of the Preliminary Works Pt3A and NRE see no reason why this condition would not carry through to the current proposal should it be approved. A commitment to rehabilitation is also contained in the current LW5 SMP WMP and this will be continued as part of future SMP plans and, if required, clarified to specifically identify offsets. It should be noted that due to past mining of the Bulli and Balgownie seams significant iron flocculent is already present in Cataract Creek, smothering some sections of the creek. Additional fish surveys have been undertaken by Biosis, and the results of these surveys are outlined in PPR.	The SCA considers the design approach must be based to meet the SCA's performance criteria of negligible environmental consequences on features of special significance such as Cataract Creek.
The SCA is very concerned about impacts to the swamps affecting their ecological function such as stormwater buffering, providing baseflow to streams, and maintaining water quality. Any dewatering of these swamps also increases the likelihood of erosion. Impacts and consequences to swamps will be greater than accepted by NRE and will take a long time to become evident.	New Wonga east layout and revised swamp assessment significantly reduce the likelihood of impact to swamps of special significance including CCUS1, CCUS5, CCUS10, CRUS2 and CRUS3. BCUS4 and CCUS4 are considered to have a moderate likelihood of impacts, of which only CCUS4 is considered to be of 'special significance'. NRE has previously accepted that TARPs are not an effective method of managing swamp impacts and doesn't intend to use them as a management tool for this purpose.	The SCA considers the design approach must be based to meet the SCA's performance criteria of negligible environmental consequences on features of special significance such as Cataract Creek.

Swamps can't be remediated once the base of the swamp is cracked. Adaptive management and TARPs are not effective due to the time lag in impacts being observed. The only way to manage swamp impacts is to not mine beneath them nor within a 35 or 40 degree angle of draw.	NRE has modified the Wonga east longwall layout to minimise impacts to special significance swamps as identified by Biosis. Full avoidance of all swamps is not possible while maintaining a commercially viable operation. NRE are currently re-designing the monitoring plan to integrate surface water, groundwater and ecological monitoring programs to ensure a comprehensive assessment of the ecosystem function of upland swamps within the study area. EA outlines the proposed remediation techniques that NRE could consider depending on the type of impact to a swamp. Offsets are already required by Condition 3, Schedule 3 of the Preliminary Works Pt3A and NRE see no reason why this condition would not carry through to the current proposal should it be approved. A commitment to offsets is also contained in the current LW5 SMP BMP and this will be continued as part of future SMP plans. Attempts have been made to remediate upland swamps following impacts such as erosion using techniques such as coir logs, wooden structures etc. (Save Our Swamps 2010). However, these remediation techniques have been undertaken in relation to erosion. Biosis is not aware of the successful remediation of upland swamps impacted by the fracturing of bedrock. It is not feasible to remediate bedrock fractures and changes in groundwater availability, as the degree of impact from the remediation works would likely be far greater than the degree of benefit. NRE proposes to outline an offset strategy once a Project Approval is received. This offset strategy will be developed in conjunction with relevant stakeholders.	The SCA considers the design approach must be based to meet the SCA's performance criteria of negligible environmental consequences on features of special significance such as the identified swamps.

SYDNEY CATCHMENT AUTHORITY

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Our Ref: D2014/68955

Mr David Kitto
Director Mining Projects
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Jessie Giblett

Dear Mr Kitto

RESPONSE TO SUBMISSIONS DOCUMENT
WOLLONGONG COAL RUSSELL VALE COLLIERY
PRELIMINARY WORKS PROJECT MODIFICATION 2 NO. MP 10_0046 MOD 2

I refer to your Department's e-mail dated 9 July 2014 inviting comments on the Response to Submissions (RTS) document for the Wollongong Coal Russell Vale Colliery modification application 2.

The Sydney Catchment Authority (SCA) has adopted a set of principles that underpin its decision making in relation to mining activities in the Special Areas. These have been communicated to Wollongong Coal and to Department of Planning and Environment on previous occasions. The SCA has also developed performance measures for natural and built features of interest to the SCA for this project, which are detailed in our submission dated 16 May 2014. The SCA has assessed the proposed mining proposal contained in the RTS against its mining and coal seam gas principles and performance measures.

The RTS provides a further minor revision to subsidence predictions and more discussion on geological structures. The RTS also includes revised groundwater modelling and assessment and surface water modelling.

The SCA notes there has been no drilling undertaken to confirm the full extent of the Corrimal Fault in the northwest and possibility of reactivation of the fault and/or connection with Cataract Reservoir. The SCA continues to have major concerns with regards to the potential for induced leakage from the Cataract Reservoir and longwall mining within the Cataract Dams Safety Committee (DSC) notification area. These concerns were highlighted in our earlier submission on the project.

The SCA also notes that the surface water modelling report (Appendix E) states that it is not currently feasible to definitely quantify any overland stream flow losses that may, or may not, result from the potential loss mechanisms.

The SCA has reviewed the RTS document including accompanying appendices. Notwithstanding this information the SCA's position on the application remains as stated in our submission dated 16 May 2014. In summary the SCA considers that there are significant issues that need to be addressed. **We object to the proposal as it**

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currently stands, particularly with regard to its incursion into the Dams Safety Committee Notification Area surrounding Cataract Reservoir.

The SCA's particular concerns remain largely as detailed in our earlier submission and are summarised as:

- Incomplete knowledge of key geological structures known to occur in the area proposed to be mined.
- The potential loss of stored waters from Cataract Reservoir to underground mine workings at the upper arm of Cataract Reservoir as a result of mining induced leakage.
- The impact on the environment of Cataract Creek and associated tributaries, swamps and dependent ecosystems as a result of the loss of stream flow, reduction in base flows, increased acidification and iron precipitation, and the reduction in shallow water tables affecting swamp vegetation and significant impacts to the "*Special Significance*" upland swamp CCUS4.

In light of our objection to the proposal, **the SCA recommends:**

1. **The DSC Notification Area around Cataract Reservoir be adopted as an Exclusion Zone where no longwall mining is permitted.**
2. **The proposed adaptive management approach proposed for mining activities not be used due to the lag time for mining-related impacts to manifest and changes required to be implemented.**
3. **The SCA's impact performance measures developed for the proposed mining area be adopted.**
4. **The Department seek expert advice on the substantive issues raised in this submission prior to making a recommendation on the proposal.**

The SCA requests the opportunity to continue to be involved in any ongoing assessment of the application.

Further queries about our submission can be directed to Malcolm Hughes, Senior Manager Planning and Environment, who can be contacted on 4724 2452 or via e-mail malcolm.hughes@sca.nsw.gov.au.

Yours sincerely

GRAHAM BEGG 28/7/14
General Manager Catchments

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WOLLONGONG CITY COUNCIL

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Department of Planning & Infrastructure
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SYDNEY NSW 2001

APPLICATION	**MP-2009/13**
Date	**13 November 2013**

Dear Sir/Madam

PREFERRED PROJECT REPORT – MAJOR PROJECT - UNDERGROUND EXPANSION OF NRE No. 1 COLLERY (MP-2009/13).

Thank you for providing Council the opportunity to review the proponent's Preferred Project Report for the proposed underground expansion of NRE No. 1 Colliery.

Council notes that Gujarat NRE Coking Coal Ltd through the Preferred Project Report process has significantly modified the original proposal, in response to issues raised by government agencies, Council and public submissions. The main changes in the revised proposal include removing the originally proposed Wonga West longwalls and restricting longwall extraction to the Wonga East area only with a corresponding lesser total resource yield of 4.7 million tonnes of coal, instead of the originally proposed yield of 31.1 million tonnes. In light of these changes, the revised project life for the mine is also reduced from 18 years to 5 years.

Council requests that the attached submission be taken into consideration during the Department's assessment of the Preferred Project Report. In this regard, the removal of the Wonga West longwalls as per this revised proposal has resolved a number of issues previously identified by Council in its submission at the time of the original Environmental Assessment review. However, several issues remain unresolved, including the necessary construction of three (3) acoustic barriers, in order to protect surrounding residential areas from noise emanating from the mine's pit top operations. Additionally, the proposed Wonga East longwall panels A2 LW6 and A2 LW7 still sit beneath three (3) 'special significance' swamps and hence, it is recommended that these longwalls either be deleted, reorientated or shortened in length, in order to protect these swamps from subsidence related impacts.

Should you have any enquires or wish to discuss this matter further assistance with regard to this matter please contact Ron Zwicker, Special Projects Manager on (02)4227 7639.

Yours faithfully

David Farmer
General Manager
Wollongong City Council

Council Submission on Preferred Project Report for the Proposed Underground Expansion of the NRE No. 1 Colliery

Previous Council Issues raised during the assessment of the original Environment Assessment Report	Preferred Project Report Response	Resolution of Issue? (Yes/No) / Council Comment
<u>'Special Significance' Upland Swamps</u> 1. Longwall panel A1-LW3 be shortened in length to ensure that the longwall panel does not sit below swamp CCUS1.	Longwall panels A1 – LW1 - LW3 have been re-orientated so as to ensure that LW3 is no longer underneath swamp CCUS1.	Yes.
2. Longwall panels A2 LW7 and A2 LW8 be either deleted or shortened in length to ensure that swamp CCUS5 is not undermined / adversely affected by any subsidence related impacts.	The originally proposed longwall panel A2 LW8 has been deleted, under the Preferred Project Report. However, longwall panel A2 LW7 remains unchanged and hence, still sits below the 'special significance' swamp CCUS5.	No. The longwall panel A2 LW7 is recommended to either be deleted, reorientated or shortened in length to minimise any potential subsidence related impacts upon the 'special significance' upland swamp CCUS5.
3. Longwall panel A3 LW2 be deleted or shortened to ensure that the 'special significance' swamp WCUS4 will not be subject to subsidence related impacts. If longwall panel A3 LW2 was deleted, other upland swamps LCUS18 and WCUS11 would also be protected from any subsidence related impacts / hydrological losses.	All Wonga West longwall panels (including A3 LW2) have been deleted under the Preferred Project Report response.	Yes.
4. Longwall panels A3 LW3 and LW4 be reduced in length to guarantee that swamp WCUS7 will be adequately protected.	All Wonga West longwall panels (including A3 LW3 and LW4) have been deleted under the Preferred Project Report response.	Yes.
<u>Giant Burrowing Frog</u> 5. The lateral tributary of Lizard Creek in which a colony of the Giant Burrowing Frog was	All Wonga West longwall panels, the Wonga Mains driveage and the proposed first workings in the Western Balgownie and Western Bulli seam have been deleted under the	Yes.

	detected, including its upland catchment area should be further protected from subsidence impacts.	Preferred Project Report response.	
6.	Deletion of longwall panel A3 LW2 to protect the 'special significance' headwater swamp WCUS4 and upland swamps WCUS11 and LCUS18 and to protect the habitat of the Giant Burrowing Frog.	All Wonga West longwall panels (including A3 LW2) have been deleted under the Preferred Project Report response.	Yes.
7.	Deletion of longwall panels A3 LW4 and A3 LW5, in order to protect 1st order streams of Lizard Creek Tributary 2 and to protect the breeding habitat of the Giant Burrowing Frog.	All Wonga West longwall panels (including A3 LW4 and A3 LW5), the Wonga Mains driveage and the proposed first workings in the Western Balgownie and Western Bulli seam have been deleted under the Preferred Project Report response.	Yes.
8.	Reduction in the length of longwall panels A3 LW2 and A3 LW3, in order to protect the 1st order streams of Lizard Creek Tributary 1 and upland swamp LCUS18 and 'special significance' upland swamp WCUS11.	All Wonga West longwall panels (including A3 LW2 and A3 LW3) have been deleted under the Preferred Project Report response.	Yes.
9.	Reduction in the length of longwall panel A2 LW9 to protect Cataract Creek from undermining and potential subsidence related cracking.	Longwall panels A2 LW9 – LW11 have been reorientated to run parallel to Cataract Creek, in order to minimise any undermining or potential subsidence related cracking impacts.	Yes.
10.	Deletion of longwall panel A2 LW8 to protect Cataract Creek from potential subsidence related impacts and to protect the 'special significance' upland swamp CCUS5 and the 1st order streams connected to CCUS5, in order to maintain the habitat of the Giant Burrowing Frog.	Proposed longwall panel A2 LW8 has been deleted, under the Preferred Project Report.	Yes.
11.	Reduction in the length	Proposed longwall panel A2 LW7 still	No.

	of longwall panel A2 LW7, to protect the 'special significance' upland swamp CCUS5.	sits below the 'special significance' upland swamp CCUS5.	The longwall panel A2 LW7 is recommended to either be deleted, reorientated or shortened in length to minimise any potential subsidence related impacts upon the 'special significance' upland swamp CCUS5.
12.	Reduction in the length of longwall panel A2 LW6 to protect the 'special significance' upland swamps CCUS4 and CRUS1.	Proposed longwall panel A2 LW6 remains unchanged under the Preferred Project Report and hence, sits below both the 'special significance' upland swamps CCUS4 and CRUS1.	No. The longwall panel A2 LW6 is recommended to either be deleted, reorientated or shortened in length to minimise any potential subsidence related impacts upon the 'special significance' swamps CCUS4 and CRUS1.
<u>Heath Frog</u> 13.	Deletion of longwall panels A3 LW4 and A3 LW5, in order to protect 1st order streams of Lizard Creek Tributary 2 and to protect the habitat of this frog species	All Wonga West longwall panels (including A3 LW4 and A3 LW5) have been deleted under the revised proposal.	Yes.
14.	Reduction in the length of longwall panels A3 LW2 and A3 LW3, in order to protect the 1st order streams of Lizard Creek Tributary 1 and upland swamp LCUS18 and 'special significance' upland swamp WCUS11.	All Wonga West longwall panels (including A3 LW2 and A3 LW3) have been deleted under the revised proposal.	Yes.
15.	Reduction in the length of longwall panel A2 LW9 to protect Cataract Creek from undermining and potential subsidence related cracking.	Longwall panel A2 LW9 has been reorientated to run parallel to Cataract Creek, in order to minimise any undermining or potential subsidence related cracking impacts.	Yes.
16.	Deletion of longwall panel A2 LW8 to protect Cataract Creek from potential subsidence	Proposed longwall panel A2 LW8 has been deleted, under the Preferred Project Report.	Yes.

	related impacts and to protect the 'special significance' upland swamp CCUS5 and the 1st order streams connected to CCUS5.		
17.	Reduction in the length of longwall panel A2 LW7, to protect the 'special significance' upland swamp CCUS5.	Proposed longwall panel A2 LW7 still sits below the 'special significance' upland swamp CCUS5.	No. The longwall panel A2 LW7 is recommended to either be deleted, reorientated or shortened in length to minimise any potential subsidence related impacts upon the 'special significance' upland swamp CCUS5
18.	Reduction in the length of longwall panel A2 LW6 to protect the 'special significance' upland swamp CCUS4 and CRUS1.	Proposed longwall panel A2 LW6 remains below the 'special significance' upland swamps CCUS4 and CRUS1.	No. The longwall panel A2 LW6 is recommended to either be deleted, reorientated or shortened in length to minimise any potential subsidence related impacts upon the 'special significance' swamps CCUS4 and CRUS1.
<u>Red Crowned Toadlet</u> 19.	Deletion of longwall panel A3 LW2 to protect the 'special significance' headwater swamp WCUS4 and upland swamps WCUS11 and LCUS18 and to protect the habitat of the Giant Burrowing Frog and the Red Crowned Toadlet.	All Wonga West longwall panels (including A3 LW2) have been deleted under the revised proposal.	Yes.
20.	Reduction in the length of longwall panel A3 LW3, in order to protect the 1st and 2nd order streams of LCT1.	All Wonga West longwall panels (including A3 LW3) have been deleted under the revised proposal.	Yes.
21.	Deletion of longwall panel A3 LW5, in order to protect 1st order streams of Lizard Creek Tributary 2, LCUS25 and to protect	All Wonga West longwall panels (including A3 LW5) have been deleted under the revised proposal.	Yes.

the breeding habitat of the Red Crowned Toadlet.		
<u>Stuttering Barred Frog</u> 22. The deletion of A2 LW8 and reduction in A2 LW7 to protect 'special significance' upland swamp CCUS5 and to protect the habitat of the Stuttering Barred Frog.	Longwall panel A2 LW8 has been deleted under the Preferred Project Report. However, longwall panel A2 LW7 remains directly below the 'special significance' swamp CCUS5.	No. The longwall panel A2 LW7 is recommended to either be deleted, reorientated or shortened in length to minimise any potential subsidence related impacts upon the 'special significance' upland swamp CCUS5 and to further protect the habitat of the Stuttering Barred Frog.
23. The monitoring of the current longwall A2 LW5.	On-going monitoring of longwall A2 LW5 is being undertaken.	Yes.
<u>Green and Golden Bell Frog</u> 24. Targeted survey work and impact assessment is recommended to be undertaken for the Green and Golden Bell Frog (GGBF) prior to any determination of the project.	The revised Biodiversity report by Biosis dated 20 September 2013 (contained in the Preferred Project Report) indicated that the Green and Golden Bell Frog has not been recorded within the study area and hence, no targeted survey work was undertaken. The Preferred Project Report (section 2.2.1 on page 234) also indicated that "there is only one known marginal habitat for the GGBF on the NRE No. 1 Colliery Pit Top. This is Dam 6 which is proposed to be removed as part of the realignment of the Bellambi Gully Creek in the MP10—0046 Preliminary Works Pt3A application." The Preferred Project Report (page 234) also stated that "NRE also received approval EPBC 2011/5891 under the EPBC Act for the proposed works to Dam 6 and Bellambi Gully. This approval also required monitoring and a management plan to be developed for the GGBF in Dam 6. The BMP addresses the conditional requirement of the EPBC Act approval NRE has been monitoring Dam 6 for 4 years and no GGBF's have been	Yes. Based on the Preferred Project Report advice that no GGBF's have been detected on-site during the last 4 years, no further targeted survey work is considered necessary for the GGBF.

	detected during this period of time."	
25. A detailed Assessment of Significance is required for the Green and Golden Bell Frog (GGBF) is also recommended, prior to the approval of the project. This is essential since the GGBF was previously recorded within the NRE No. 1 Russell Vale Colliery site and works are proposed within the pit top area of the colliery.	The Preferred Project Report confirms that targeted monitoring of GGBF has been carried out on the Pit Top area near Dam 6 over the last 4 years and no GGBF's have been detected. Therefore, no detailed Assessment of Significance is required for the GGBF.	Yes. Given that the Preferred Project Report confirms that no Green and Golden Bell Frogs (GGBF's) have been detected on-site during the last 4 years, no further targeted survey work nor detailed Assessment of Significance is considered necessary.
<u>Noise Mitigation Measures</u> 26. Construction of a 3 metre high barrier to the south of Broker Street, Russell Vale near the intersection with West Street.	The Preferred Project Report (page 254) states that "The sound walls were included in the modelling but a proposed noise bund to the south of the site was not included to ensure that the modelling was conservative. Since the preparation of the EA, NRE has been advised by both independent consultants and DPI noise professionals that the sound walls would have very little impact on noise attenuation in the proposed locations. This is why NRE requested the modification of the Preliminary Works Pt3A to remove the walls and undertook to implement the findings and recommendations of an independent noise audit. The removal of the walls from the modelling in this EA would not make a significant difference to the outcome given its already conservative modelling and the negligible contribution the walls make to noise management." The Preferred Project Report (page 256) also indicates that "NRE will utilise the existing NMP process to ensure that appropriate actions are implemented to meet specific noise criteria that are determined as appropriate for the operation."	No. The original Noise Assessment report by ERM dated 30 November 2012 involved detailed acoustic modelling which was based on certain noise attenuation / mitigation measures being provided on-site, including: (i) a 3 metre high acoustic barrier to the south of Broker Street (ii) a 3.6 metre high roadside type barrier to the north of the internal access road from the weighbridge to the Princes Highway and (iii) noise mitigation of certain equipment such as mine ventilation fans and dozers. Therefore, concern is raised about potential noise impacts upon surrounding residential areas from pit top activities, if the noise barriers are not installed. Further, the recent noise audit report (ie referred to in the Preferred

			Project Report) does not properly consider how certain weather conditions (ie wind speed and direction, cloud cover etc) influence noise emanating from the pit top activities. Therefore, Council reiterates its original EA comments that the three (3) acoustic barriers are necessary and should be subject to appropriate conditions of consent, in the event that the Department ultimately approves the revised proposal.
27.	Construction of a 3.6 metre high roadside type barrier to the north of the internal access road from weighbridge to the Princes Highway.	As above, the Preferred Project Report indicates that no acoustic barrier will be provided.	No. The provision of this 3.6 metre high acoustic barrier is recommended as a condition of consent should the Department ultimately recommend approval of the revised proposal.
28.	Construction of a 3 metre high noise barrier to the south of the site.	As above, the Preferred Project Report indicates that no acoustic barrier will be provided.	No. The provision of this 3 metre high acoustic barrier is recommended as a condition of consent should the Department ultimately recommend approval of the revised proposal.
29.	Other noise mitigation measures identified in the ERM acoustic report be implemented. This will ensure that some acoustic relief is provided to residents from any pit top activities.	The Preferred Project Report (page 246) indicates that "NRE is undertaking noise mitigation on the conveyor and has engaged an industrial acoustic engineer to provide advice on other options to reduce noise emissions from existing infrastructure. The attended noise monitoring is continuing in liaison with DPI to determine the baseline operating noise levels at night during	No. The Preferred Project Report fails to provide conclusive advice as to what noise mitigation measures will be introduced in order to address potential noise impacts from the Pit Top area activities, especially

	the winter / autumn period to provide data for further assessment of the noise levels and potential actions that may need to be undertaken by NRE and DPI."	truck loading activities and dozers working upon the stockpile areas. Noise impacts along Bellambi Lane also remain unresolved. Therefore, Council requests that the NSW Department of Planning and Infrastructure guarantee that appropriate noise mitigation measures are implemented as part of any such Part 3A approval.
<u>Air Quality Mitigation Measures</u> 30. The completion of all Stage 1 coal handling facility upgrades namely: (i) the removal of the existing Balgownie decline conveyor and storage bin and replacement with a newly designed Wongawilli decline conveyor on a similar alignment (ii) decommissioning of the existing Bulli decline conveyor (iii) construction of a stackout conveyor and tripper system and (iv) construction of a new screening and sizing station.	The Preferred Project Report (page 228) indicates that: (i) the Balgownie conveyor has been decommissioned and the vast majority of the conveyor has been removed (ii) the Bulli decline belt has also been removed and (iii) the new Wongawilli conveyor, stackout conveyor and tripper have been installed. However, the new screening and sizing station unit has not been constructed at this point in time. Further, air quality concerns regarding dust particulate emissions especially concentration of PM10 particulate and total suspended particles remain unchanged.	No. The construction of the new screening and sizing station should be a condition of consent if the application is ultimately approved. Appropriate conditions of consent should also be required which satisfactorily address the air quality (PM10 particulate and total suspended particulate) issues.
31. The full enclosure of the coal conveyor to the stockpile areas.	The Preferred Project Report (page 330) confirms that the existing approved AQGGMP requires the decline conveyor and all new conveyors to be fully enclosed. This plan is updated annually or as required in liaison with EPA, WCC and OEH and re-submitted to DoPI for approval.	Yes.
32. The full enclosure of the screening and sizing	The Preferred Project Report (page 228) confirms that the screening and	Yes.

	plant, in order to minimise dust emissions.	sizing plant will be fully enclosed when constructed.	
33.	An automatically controlled fixed stockpile spray system around the stockpile areas.	The current stockpile spray system is automated and linked to an anemometer located on the thickener tank near the stockpile area.	Yes.
34.	A mobile water truck be used throughout the site.	Water trucks are already used to suppress dust on both sealed and unsealed areas of the site and this management practice is contained in Appendix C of the AQGGMP.	Yes.
35.	Roadside sprays.	Water trucks are proposed and used rather than a reticulated road side spray.	Yes.
36.	Provision of truck washing facilities that are used for all trucks, prior to departure from the site.	A truck washing system is already in use and is proposed as a continuing control.	Yes.
37.	All trucks must be covered before leaving the site, in order to minimise the potential for dust impacts along haul routes.	The covering of loads prior to leaving the site is both a regulatory requirement and is included in the Drivers Code of Conduct.	Yes.
38.	All surfaces on which trucks park or travel in the truck loading area shall be sealed to facilitate dust control and water management.	The Preferred Project Report (page 228) NRE reaffirms its commitment to seal all haul roads and truck parking areas.	Yes.
39.	A bobcat mounted road sweeper be used on all sealed surfaces.	The Preferred Project Report (page 228) confirms that the area around the Pit Top workshop and portals areas is swept by a road sweeper regularly to keep dust levels down. NRE is also committed to sweep Bellambi Lane weekly.	Yes.
40.	Fixed water sprays at selected points on a number of surface and underground conveyor systems.	The Preferred Project Report (page 228) indicates that there are already water sprays on the underground conveyor system to keep underground dust levels at an acceptable level. Coal will also be transported on-site using a network of covered conveyors, where practicable.	Yes.
<u>Aboriginal Cultural Heritage Issues</u> 41.	Longwall panels A2 LW9	Under the Preferred Project Report, proposed longwall panels A2 LW9 – A2 LW11 have been reorientated in	Yes. Given that Aboriginal archaeological sites 52-2-0099 and 52-2-0299 are

and A2 LW10 be reduced in length, in order to protect significant Aboriginal archaeological sites.	order to minimise the impact upon Cataract River and its tributaries. However, longwall panel A2 LW10 remains situated below Aboriginal archaeological sites 52-2-0099 and 52-2-0299 (both axe grinding sites) which are both identified as having a low scientific significance.	both identified as having a low scientific significance, no objection is raised to the proposed revised longwall panel A2 LW10.
42. The assessment of Aboriginal cultural heritage issues is recommended to be undertaken prior to any project determination; in line with the Department's EA requirements.	The Preferred Project Report confirms that Aboriginal stakeholders participated in a series of site visits conducted between 4 and 6 September 2013. The Preferred Project Report also confirms that the risk of impact to Aboriginal sites within the study area generally ranges between negligible, and low, except for site 52-2-0603 (shelter with art and artefact) which is below longwall panel A2 LW11 and is likely to be subject to a moderate impact risk, as a result of up to 1.5m of additional subsidence and up to 250mm of horizontal compression.	Yes. Site 52-2-0603 is identified as having a high cultural heritage significance to Aboriginal people yet low scientific significance. Therefore, the sign-off by the NSW Office of Environment and Heritage is recommended given the cultural heritage significance.
<u>Traffic Issues</u> 43. Further traffic modelling and assessment is recommended for the full life of the coal mine up to Year 2031. The required traffic modelling / assessment should focus on relevant key intersections and mid-block performance. The modelling should also include an additional 12 years of background traffic growth at 1% for Bellambi Lane and 5% for the Northern Distributor.	The Preferred Project Report does not include any traffic modelling for the revised life of the mine (ie up to the end of 2018).	No. Council requests that traffic modelling be required for the next 5 years (2018) which deals with affected intersections and mid-block performance, prior to the determination of the application.
44. The proponent shall be required to enter into negotiations with Council and RMS regarding the funding of additional road maintenance to mitigate the impact of additional trucks along the haulage route.	The Preferred Project Report does not provide any response to Council's previous submission request that negotiations take place with Council and the Roads and Maritime Service (RMS) concerning funding towards road maintenance works to mitigate the impact of additional trucks along the haulage routes.	No. Therefore, Council requests that the Department impose a condition of consent requiring that appropriate negotiations take place with both

		Wollongong City Council and the NSW Roads and Maritime Service concerning funding towards road maintenance works as a result of the additional trucks using local and regional roads between the site and the Port Kembla Coal Terminal.
45. Changes to the internal layout should comply with the relevant Australian Standard and provide adequate parking and turning space to accommodate staff, delivery and service vehicles. Separation of employee's vehicles and heavy vehicles is recommended to ensure that conflicts do not occur.	The Preferred Project Report does not propose separation of employee's vehicles and haulage or delivery trucks. The PPR also fails to make any changes to the internal parking layout and delivery areas within the Pit Top.	No. Council requests that appropriate conditions of consent be imposed requiring the sealing and line marking of the employee's carpark. However, given that the revised life of the mine is for a maximum 5 year period, it is considered reasonable not to require the construction of a new haulage road or employee access road. In the event that a separate new application is ultimately lodged for the Wonga West mine lease area, then a new haulage road or employee access road should be considered at that time.
<u>Other Issues</u> 46. Potential Surface Water and Groundwater Impacts	The Preferred Project Report does not adequately assess the impacts of the proposed mining activities on both the perched and the regional aquifer.	No. Hydraulic modelling under the NSW Office of Water guidelines is recommended to be undertaken by a suitably qualified groundwater expert, prior to the determination of the Part 3A application.

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WOLLONGONG CITY COUNCIL

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PCU54256

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Director of Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Your Ref:	MP-09-0013
Our Ref:	Z14/239719
File:	MP-2009/13
Date:	3 July 2014

Dear Sir/ Madam

RUSSELL VALE COLLIERY – RESIDUAL MATTERS REPORT - MAJOR UNDERGROUND EXPANSION PROJECT (MP-2009/13)

Thank you for providing Council with the opportunity to provide comments on the Residual Matters Report for the Major Underground Expansion project for Russell Vale Colliery at Russell Vale.

Council notes that the Residual Matters Report is in response to agency submissions, including Council's submission dated 13 November 2013 with respect to the previous Preferred Project Report.

However, the majority of issues raised in Council's previous submission remain unresolved. In this regard, the proposed Wonga East longwall panels A2 LW6 and A2 LW7 remain beneath the three (3) 'special significance' swamps (CCUS4, CCUS5 and CRUS1), despite Council's request for these longwall panels to be either deleted, significantly shortened or reorientated, in order to protect these 'special significance' swamps from any subsidence related impacts. Council notes that the Residual Matters Report clearly acknowledges that 'special significance' swamp CCUS4 in particular will experience adverse ecosystem health effects, arising from reduced water holding capacity and reduced water quality, due to subsidence related impacts.

Further, Council notes that the Noise Impact Assessment report has not yet been completed, in order to address Council's previous concerns regarding pit top operational noise impacts upon surrounding residential properties. Therefore, Council reiterates its previous position that the three (3) acoustic barriers are required upon the perimeter of the site, in the absence of any possible alternative noise attenuation measures which may or may not be addressed in the pending Noise Impact Assessment report.

In light of the above, Council requests that the Department reconsider the issues raised in Council's previous submission dated 13 November 2013 and that the pending Noise Impact Assessment report be forwarded to Council for consideration, when it is completed.

Should you have any enquiries or wish to discuss this matter further, please contact Ron Zwicker, Special Projects Manager on (02) 4227 7639.

Yours faithfully

David Farmer
General Manager
Wollongong City Council

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PCU56185

Ms S Wilson
Planning Officer
Mining Projects
Development Assessment Systems and Approvals
NSW Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Your Ref:	MP 10-0046 Mod 2
Our Ref:	Z14/408508
File:	MP-2010/46/B
Date:	2 October 2014

Dear Ms Wilson

RUSSELL VALE COLLIERY – RESPONSE TO SUBMISSIONS - PRELIMINARY WORKS PROJECT MODIFICATION 2

Thank you for providing Council with the opportunity to provide comment on the revised Bellambi Gully Flood Study dated 27 August 2014 prepared by Cardno (NSW/ACT) Pty Ltd on behalf of Wollongong Coal for the Russell Vale Colliery site.

The revised Bellambi Gully Flood Study has been reviewed against the provisions of Chapter E13: Floodplain Management and Chapter E14: Stormwater Management of Wollongong Development Control Plan 2009. In this regard, the revised Bellambi Gully Flood Study should include final flood mitigation option(s) based upon realistic design assumptions such that no additional flooding impacts occur to areas downstream of the site. This includes no flow diversions down Bellambi Lane for any storm event.

In particular, the design of the culvert being proposed adjacent to the stockpile access road should be based on a 100 year Average Recurrence Interval (ARI) or greater analysis using the Wollongong City Council 'policy based' conduit blockage criteria. In addition, the proposed swale alongside the stockpile access road should be designed to cater for the contributing 100 year ARI design flows or greater and ensure that these flows can be conveyed to the licensed discharge point at Bellambi Creek.

In light of the above, it is recommended that detailed survey work of the site take place bearing in mind the comments raised above and in Council's previous letter dated 5 August 2014.

Should you have any enquiries or wish to discuss this matter further, please contact Mr Ron Zwicker, Special Projects Manager on (02) 4227 7639.

Yours faithfully

David Farmer
General Manager
Wollongong City Council