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Our Ref: D2012/079437

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 NRE NO. 1 COLLIERY
PRELIMINARY WORKS PROJECT MODIFICATION MP 10_0046**

I refer to your letter dated 7 August 2012 inviting the Sydney Catchment Authority (SCA) to make a written submission and provide any recommended conditions for approval of the NRE No. 1 Colliery-Preliminary Works Project modification.

The SCA's submission in relation to the modification (attached) seeks to clarify the approval process, reiterates past comments as to the need for appropriate modelling and monitoring of the environmental impact, and proposes that performance standards be set to quantify impacts. It proposes recommended conditions that seek to provide greater protection to Cataract River, Cataract Creek and the associated uplands swamps and catchment.

The SCA also provides the following general comments on the approach for planning approval by the applicant.

1. Approval process

The Subsidence Management Plan, Water Management Plan and Part 5 application for longwall 4 have previously been approved by the Department of Resource and Energy. The SCA understands that the mining of longwall 4 commenced in April 2012 and is more than halfway complete. It is unclear as to the need for another approval for longwall 4 and why the Stage-1 Preliminary Works Project is being modified to include Stage-2 Major Expansion Project components when a previous assessment by all Government agencies identified significant deficiencies, uncertainties and lack of confidence in the environmental assessment of that part of the project.

2. Integrated assessment

The SCA considers it is better practice for mining companies to consolidate their proposed mining activities for a major project into one planning application rather than undertaking this in a piecemeal fashion. A consolidated application enables determining authorities and others to assess the totality of the environmental and other impacts as part of a single process. This is particularly relevant when seeking to understand

cumulative impacts and for the consent authority to coordinate the technical inputs provided by agencies.

The SCA considers that it is appropriate for the first workings for longwalls 6, 7 and 8 to be assessed as part of the assessment of future secondary extraction as part of the Stage-2 Major Expansion Project. This would enable the entirety of the impacts of the longwalls to be assessed, and a more integrated approach to be taken to the management of impacts.

3. Performance monitoring

Information contained in the modification Environmental Assessment (EA) report is inadequate for the SCA to be satisfied that the project will not have an adverse impact on Cataract Reservoir and its catchments which forms part of Sydney's drinking water supply. Deficiencies in the EA include inconsistent data, statements and interpretations; an absence of any revised information relating to groundwater and surface water assessment; inadequate surface water, groundwater and swamp baseline monitoring data; and uncertainty regarding subsidence predictions for longwall 5 and the unresolved potential ecological impacts of this subsidence.

4. Way forward

The SCA would appreciate being involved in any further environmental assessment and consultation process associated with the project and the opportunity to comment on any draft conditions. The SCA in particular requests that any Subsidence Monitoring Program, Catchment Monitoring Program, Water Management Plan, Land Management Plan, Asset Management Plan, Adaptive Management Plan, Contingency Plan and Rehabilitation Management Plan and associated components and drawings be provided to the SCA for review and comment.

If you wish to discuss any matter raised in this letter please do not hesitate to contact Dr Girja Sharma on 4724 2459 or via e-mail girja.sharma@sca.nsw.gov.au.

Yours sincerely

 13/9/12
DR PETER DAVIES
Senior Manager, Sustainability

Attachment: SCA Submission

SUBMISSION BY SYDNEY CATCHMENT AUTHORITY

SEPTEMBER 2012

NRE No. 1 COLLIERY – PRELIMINARY WORKS PROJECT MODIFICATION

1. Location of Mining Area and Relationship to Areas of Interest to the SCA

The Project general arrangement and areas of interest to the SCA and the reasons for interest are summarised below:

- *Longwalls 4 and 5* - this part of the Project has the potential to impact on the parts of Cataract River, Cataract Creek and associated upland swamps and catchments. All of these lands are owned by the SCA and are part of the SCA's Special Areas.
- *Maingates 6, 7 and 8 and future secondary extraction of longwalls 6, 7 and 8* – this part of the Project is located within the Cataract Dam Notification Area specified by the NSW Dams Safety Committee. Mining in these areas has the potential to impact on Cataract Dam, Cataract Reservoir, Cataract River, Cataract Creek and associated swamps and catchments. The dam, reservoir and all of the lands are owned by the SCA and are part of SCA's Special Areas.

Within the SCA's area of operations the SCA supports a precautionary and adaptive management approach, and the adoption of best practice and recommendations as identified in the *2010 Planning Assessment Commission Report on Bulli Seam Operations* and *2008 NSW Southern Coalfield Inquiry*. These best practice and recommendations relate to improved assessment and regulatory processes, subsidence impact management, the prediction of subsidence effects and impacts, and appropriate environmental baseline information.

2. The SCA's Principles for Managing Mining Impacts

The SCA has developed a set of principles that underpin its decision making in relation to mining and coal seam gas activities. The principles establish the outcomes the SCA considers as essential to protect the drinking water supplies to the four and half million people of Sydney, Illawarra, Blue Mountains, Southern Highlands and the Shoalhaven regions. The principles are listed below:

- i. 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.
- ii. Protection of water quality**
Mining and coal seam gas activities must not result in a reduction in the quality of surface and ground water inflows to storages.
- iii. Protection of water supply infrastructure**
The integrity of the SCA's water supply infrastructure must not be compromised.
- iv. 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.
- v. Protection of ecological integrity**
The ecological integrity of the Special Areas must be maintained and protected.
- vi. 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 for Key Aspects

Cataract Reservoir and Cataract Creek and their catchments form part of Sydney's drinking water supply catchment. To ensure the protection of water quality and quantity and catchment health the SCA recommends the following performance criteria should be achieved:

Catchment yield to Cataract Reservoir

- negligible reduction to the quality or quantity of water resources reaching the reservoir
- no connective cracking between the surface and the mine

Cataract Reservoir

- negligible leakage from the reservoir
- negligible reduction in the water quality of the reservoir

Cataract River and Cataract Creek - Negligible environmental consequences, including:

- negligible diversion of flows or changes in the natural drainage behaviour of pools
- negligible gas releases and iron staining beyond current status, and
- negligible increase in turbidity.

Headwater Upland Swamps (CRHS1, CCHS3 and CCHS4) - Negligible environmental consequences including:

- negligible change in the size of swamp
- negligible change in the functioning of swamp
- negligible change to the composition or distribution of species within swamp, and
- negligible drainage of water from swamp or redistribution of water within swamp.

4. SCA's Assessment and Recommendations

The SCA has undertaken a detailed review of the modification Environmental Assessment (EA) and notes that this includes revised information. However the data draws on information from the original draft EA for the Stage-2 Major Expansion Project that the SCA and other agencies considered to be inadequate. The identified deficiencies in the modification EA include:

- The modification EA provides revised predictions for vertical subsidence, tilt and strain for longwalls 4 and 5 that are within same range as in the draft EA for Stage-2 Major Expansion Project in the Wonga east. The modification EA does not provide revised estimates for subsidence, strains, tilts, valley closure and upsidence for Cataract River, Cataract Creek and upland swamps CCHS3 and CCHS4. The SCA acknowledges that the longwall 4 has been significantly shortened and excludes mining under a dyke and Corrimal Fault, and is therefore less likely to have a significant impact on the surface environmental features as long as "pillar run" risk is as predicted. However, the subsidence predictions for longwall 5 have not considered the presence of dykes and faults in the application area. The modification EA in fact states that as a result of ongoing operational and geological investigations, faulting and other geological matters may result in further shortening of longwall 5.

Given that longwall 5 is located under earlier Bulli and Balgowine extractions and the limited empirical subsidence data relating to multi-seam longwall mining, coupled with a

network of NW-SE trending faults and dyke features in the Wonga East Area, the SCA is of the opinion that these are likely to result in variable and complex degrees of interaction across the mining area. This could present a serious impediment to reasonably predicting surface subsidence profiles with a fair degree of accuracy, irrespective of the prediction methodology employed. The SCA therefore considers the subsidence predictions for longwall 5 are inadequate and should be revised to include impacts of local geological anomalies in the application area. Only once these geological investigations are complete and the longwall plan is revised (including appropriate setbacks to Cataract Creek and Cataract River to achieve the SCA's performance criteria - see Section 3 above), would it be possible for the SCA to properly assess the impacts of the proposal on catchment and water quality and quantity.

- The modification EA does not contain any revised information relating to the impacts on groundwater. The original groundwater assessment in the draft EA for Stage-2 Major Expansion Project had significant deficiencies as previously identified by the SCA. These deficiencies were also identified by the Pells Consulting review of the Stage-2 Major Expansion Project draft EA. The SCA considers the groundwater assessment should be revised to include:
 - a revision of groundwater modelling based on adequate and scientifically rigorous groundwater monitoring data
 - sensitivity analysis of groundwater modelling that reflects the level of uncertainty in hydro-geological parameters (hydraulic conductivity and storage), the absence of the Bald Hill Claystone aquitard, the presence of local geological anomalies, as well as the uncertainty in subsidence predictions for longwall 5
 - a review of the assessment of the impacts on streams and swamps based on the results of the sensitivity analysis, and
 - better characterisation and monitoring of shallow groundwater systems, particularly dependency of streams on groundwater.
- The modification EA does not provide revised estimates for subsidence, strains, tilts, valley closure and upsidence along Cataract River and Cataract Creek. It provides subsidence predictions and impacts on the upland swamp CRHS1 but does not provide these for swamps CCHS3 and CCHS4. Monitoring of the Cataract River has still not been undertaken, and there is limited monitoring data for stream flow and upland swamps. The modification EA does not address performance criteria defined for water resources (catchment yield and reservoir integrity and quality), watercourses, swamps and flora and fauna. Proposed longwalls 4 and 5 are located under the earlier Balgowine extractions and the SCA is therefore concerned whether the SCA recommended performance criteria (negligible environmental consequences) for Cataract River, Cataract Creek and associated swamps can be achieved. Given the uncertainties in the subsidence predictions for longwall 5, the SCA considers that the predictions and assessment of impacts on surface water and associated swamps may not be valid. The SCA considers that the assessment of surface water and uplands swamps should be revised and be based on:
 - revised subsidence predictions for longwall 5 incorporating local geological anomalies, and
 - incorporate adequate and scientifically rigorous surface water and swamp monitoring data.
- The modification EA includes a revised ecological assessment for longwalls 4 and 5. The ecological assessment states that the predicted subsidence under upland swamp CCHS3, which overlies the zone of maximum predicted subsidence for longwall 5, is not anticipated to result in subsidence induced erosion, or generate any significant change in the potential for ponding. Yet it states that tensile and compressive strains may result in fracture in the Hawkesbury Sandstone to approximately 15 m below the

surface which has the potential to result in changes in surface waters and groundwater availability. The EA further states that strains of a greater magnitude than those predicted have not resulted in adverse consequences on overlaying swamps and quotes a GeoTerra 2012 draft report for longwalls 4 and 5 Stream, Swamps and Groundwater Management Plan (GMP). The modification EA neither provides the GMP nor any data on what constitute strains of a greater magnitude and any reference for unaffected swamps. It is unclear as to what subsidence and groundwater predictions and assessment have been used for the ecological assessment. Given the uncertainties in the subsidence predictions and inadequate groundwater and surface water monitoring and assessment, the SCA considers that the revised ecological assessment predictions may not be valid or represent the range of possible impacts identified by the modelling.

- The SCA's assessment has identified various inconsistencies in data, a lack of clarity, the use of inconsistent statements and judgements that affect prediction and assessment in the EA (such as the depth of cover, width of longwall pillars and the size of swamp CCHS3). The Statement of Commitment in the modification EA refers to a Water Management Plan (WMP) for longwalls 4 and 5, yet the EA includes a WMP for longwall 4 only. Some sections of the modification EA still refer to *all* longwalls in Wonga east which were part of Stage-2 Major Expansion Project even though the modification EA is for longwalls 4 and 5 only. Appendix J – Biodiversity Management Plan includes impacts on upland swamps for longwall 4 only. Such inconsistencies and incomplete information should be addressed.
- The modification EA provides a comparison between the impact assessment of this modification project with the original Stage-1 Preliminary Works Project impact assessment. This is incorrect and misleading because the secondary extraction of longwalls 4 and 5 were part of Stage-2 Major Expansion Project, not Stage-1 Preliminary Works Project ie the original impact assessment of longwalls 4 and 5 was contained in the draft EA for Stage-2 Major Expansion Project.

The SCA recommends:

- revision to the subsidence predictions for longwall 5 which should include impacts of faults and dykes in the application area and appropriate setbacks from Cataract Creek and Cataract River to ensure the SCA's performance criteria for the Cataract River, Cataract Creek and associated upland swamps and catchment can be met
- revision to the groundwater modelling and groundwater assessment should be based on adequate and scientifically rigorous baseline monitoring data including consideration of the integrity of the Bald Hill Claystone
- revision to the impacts of subsidence on streams and swamps should be based on revised subsidence predictions and adequate baseline monitoring data, and
- revision to the ecological assessment should be based on revised subsidence, groundwater and surface water assessment.

5. SCA's Suggested Requirements for Conditions

The SCA requests the Proponent be required to respond to all the matters raised above, and that this additional information be considered by the Department in the preparation of the Director General's Environmental Assessment Report. The SCA requests the opportunity to review the response.

Should project approval be recommended, the SCA requests that the following requirements be included in the approval conditions to ensure the SCA's performance criteria for the Cataract River, Cataract Creek and associated upland swamps and catchment are achieved:

1. A schedule of Performance Measures – the SCA expects the approval to include a schedule of performance measures for water resources; watercourses and built features (see Section 3 above for specifics). It is important that specified performance measures are measurable, meaningful and compliance testable.
2. The development of a Catchment Monitoring Program relevant to this project prepared in consultation with and to the satisfaction of the SCA. The program must be approved within 3 months of an approval or prior to the Proponent carrying out any second workings whichever is the earliest. The Catchment Monitoring Program and Extraction Plans must consider the relevant recommendations of Sections 18.2.2, 18.2.3, 18.2.4 and 18.2.5 of the recent report on the *Bulli Seam Operations Project* (PAC July 2010).
3. The preparation of an Extraction Plan for longwall 5 – the SCA expects the approval to include a requirement for extraction plans similar to that specified in the Metropolitan Coal Project approval (Schedule 3 – conditions 6 and 7) – but relevant to this project. The Extraction Plan should include a Water Management Plan, a Land Management Plan, a Contingency Plan, a Subsidence Monitoring Program, and an Adaptive Management Plan that is linked to monitoring programs, and should be prepared in consultation with and to the satisfaction of the SCA.
4. Rehabilitation Objectives – the Proponent should achieve the following rehabilitation objectives:
 - for all SCA catchment infrastructure works – repair/restore to pre-mining condition or equivalent, and
 - for all 3rd order watercourses and above located within the project area– restore surface flow and pool holding capacity as soon as reasonably practicable to pre-mining levels.
5. The preparation of a Rehabilitation Management Plan in consultation with and to the satisfaction of the SCA, prior to carrying out second workings.
6. The identification of Environmental Offsets necessary to compensate for either predicted or non-predicted impacts on natural features, where such impacts are non-remediable.