Some Objections to Project Application No. MP 10_0046 MOD 1

save our water catchment areas

September 19 2012

At a public rally before the last election the Premier of NSW stated that the next Liberal and National Government would "... *ensure mining cannot occur in any water catchment area and that any mining leases and exploration permits will reflect that common sense. No ifs, no buts, a guarantee*."

On December 1, 2011 the Premier told 2GB's Alan Jones: "*I don't intend to allow — particularly after the drought we went through over a decade — mining or any other activity to threaten water resources.*"

Note 1: *As advised in the cover letter, this submission is to replace the submission of September 3.*
Note 2: *This submission includes as an attachment a manuscript by Professor Philip Pells that is not to be placed on public exhibition.*

This submission is supported by the following community groups and organisations:

NATIONAL PARKS ASSOCIATION OF NSW
protecting nature through community action

LOCK THE GATE

Rivers SOS

TOTAL ENVIRONMENT CENTRE

Botany Bay and Catchment Alliance

Georges River Environmental Alliance

Illawarra Escarpment Network

Otford Protection Society

Hawkesbury Environment Network

Northern Illawarra Sustainability Alliance

Illawarra Residents for Responsible Mining

Stop CSG Sydney

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General Comments

The extent and impacts of the proposed additions to the Preliminary Works Project, reflected in the increased coal volumes, the introduction of use of longwalls and mining below two previously mined seams, the addition of new gate-roads and the use of documentation from the withdrawn expansion project, make it clear that this proposal cannot sensibly be regarded as simply a modification to the Preliminary Works project. Clearly Gujarat NRE is attempting to exploit the now repealed but nonetheless persistent 'modification' provisions of Part 3A legislation to incrementally establish its intended expansion project.

The Sydney Catchment Authority and other agencies expressed similar concerns in commenting on the Preliminary Works proposal: "*The SCA notes that the Wonga Mains Driveage is designed to obtain access to future mining areas.* ***The SCA does not consider it good practice to separate elements of a proposed new mining area into separate Projects resulting in assessment being undertaken in a piecemeal fashion.*** *The EA states that "NRE acknowledges that the construction of these access roadways and gateroads does not guarantee approval of longwall mining in the Wonga east area".* ***Nevertheless, it is considered that prior approval of the driveage could result in considerable pressure being placed on assessing and approval authorities to approve future mining projects which could compromise water quality and water quality.*** *The SCA considers that it would be more appropriate for the driveage to be assessed in conjunction with the assessment of future mining as part of Stage 2. This would enable the entirety of the impacts of this project to be assessed, and a more integrated approach to be taken to the management of impacts*." Note that the use of bold font has been added here.

The strategy being implemented by Gujarat circumvents cumulative impact considerations and side-steps the greater scrutiny that an expansion project application would attract - scrutiny which would occur within a changed legislative landscape. The persistence of the repealed Part 3A legislation does not and will not excuse the shameful ethical and moral failure of the consent authorities continuing to approve damage to our catchments and their ecosystems.

Abusing section 75W of the Environmental Planning and Assessment Act

In contrast to Section 96 of the Environmental Planning and Assessment (EP&A) Act, Section 75W provides no constraints on what might be proposed as a modification to an existing proposal - no matter how that proposal might offend the generally accepted understanding of the notion of a modification. Section 75W (s.75W) is part of the discredited and now repealed, in principle, Part 3A legislation. Unfortunately, as the current proposal demonstrates Part 3A and its excessive provisions lives on.

Section 96 is consistent with the understanding of the notion of a modification in stating "*the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted*".

The NSW Court of Appeal has commented on s.75W as follows (bold font added for clarity): "*All that can be usefully said in the abstract is that the requirement for approval of a modification must be understood in the context of three factors. The first is that the subject matter of Pt 3A is defined by reference to major infrastructure developments, as identified by the Minister (or by a State environmental planning policy), as having State or regional environmental planning significance: s 75B.* ***Secondly, the project is required to undergo environmental assessment and public consultation, of a kind not required of a modification. Construing s 75W in its context it is clear that the modification of an approval was something intended to have limited environmental consequences beyond those which had been the subject of assessment****. (Given the powers of the Director-General, it cannot be said, of course, that only modifications which properly required no further environmental assessment were envisaged.)"*

The addition of longwall mining to the Preliminary Works Project would significantly change the nature of that project and its impact of the Metropolitan Special Area. The Preliminary Works Project does not involve longwall mining and does not involve longwall mining under existing works and previously mined seams. As Appendices A and E of the Gujarat Environmental Assessment (EA) makes clear, multi-seam longwall mining is a large step into the unknown that emphasizes the stark distinction between what is being proposed as a modification and the original project.

That the current proposal cannot sensibly be regarded as modification is further highlighted by the more than 900 pages of environmental assessment material - some of which seems to be have been prepared for the expansion project. Emphasizing that the proposal is not simply a modification, the Preliminary Works reference to the use of Main Gates 4 and5 is changed from being exploratory driveages to operational gateroads. The subsidence impacts referred to in the Water Management Plan of the belatedly updated Appendix J are those of the expansion project. For instance; "*However up to 5m of depressurisation in the Hawkesbury Sandstone is predicted, which may generate up to 0.07ML/day reduction in flow to Cataract Creek, once all of the proposed panels in Wonga East are mined*." And "*Subsidence at Wonga East was predicted using the SDPS model, with the Cataract Creek main channel predicted to subside by less than 200mm, with valley closure of up to 100mm and upsidence of up to 60mm (Seedsman Geotechnics, 2012*)." Appendix A presents subsidence modelling for the expansion project.

Approval of the current proposal as a modification would further undermine confidence in the NSW planning assessment and regulatory system.

Errors, omissions and misleading statements in the Gujarat EA

The Gujarat Environmental Assessment (EA) is misleading, contains errors and refers to material that has not been provided.

A particularly misleading error is the repeated statement that a report by Geoterra (Appendix I) indicates little or no impact to swamps over Longwalls 4 and 5. The Geoterra report refers specifically to CRHS1, which is not located above the longwalls, and makes no mention of the swamps that are directly or partially above the longwalls.

The EA seems to provide no subsidence information, predicted or observed, for Longwall 4. The EA suggests revised subsidence predictions for Longwalls 4 and 5 are provided in Appendix B, however the contours appear to be associated with Longwall 5 only, though they extend over Longwall 4. Longwall 4 is believed to have been completed, yet there is no mention of the impacts of the longwall on swamps or whether the observe subsidence met or exceeded predictions. Longwall 5 would reactivate and compound the subsidence of Longwall 4, yet this is not mentioned or discussed. There appear to be no predictions for valley closure or upsidence, other than a mention of upsidence in CRHS1.

The EA does not explain why Longwalls 4 and 5 are being sought rather than other longwalls planned for the expansion project. Longwalls 1, 2 and 3 for instance are not shown or mentioned.

The EA enigmatically suggests a 'suck it and see' approach to problematic geological formations and in Appendix E Pells comments on the lack of consideration of these challenges.

The EA provides essentially no mitigation information. Instead, with limited clarity, the EA refers the reader to Appendix J as follows: "*As per the Approved Project, including without limitation, updating relevant management and monitoring plans as an **Extraction Plan** and ongoing monitoring, with specific reference to the Plans of Management presented in **Appendix J**.*" The material referred to was not available until Wednesday August 29 - just a few days before the close of the limited exhibition period.

The subsidence management plans (SMPs) eventually exhibited on the DoPI Website were prepared for Gujarat's partially successful attempt to bypass the EP&A Act approval process by abusing transitional provisions of the Act. The attempt succeeded for Longwall 4, but not Longwall 5. That is, the SMPs for Longwall 5 were rejected. The Biodiversity Management Plan is for both longwalls, whereas the Water Management Plan is for Longwall 4 only. Other management plans referred to in the EA were required as part of the Preliminary Works Project and it seems plans were submitted late and some have not yet been approved - though the EA suggests otherwise.

The Biodiversity Management Plan (BMP) belatedly provided in Appendix J seems to provide subsidence contours for Longwall 4, however the vertical subsidence figures seem too small and are not explained. Appendix A appears to be a subsidence prediction and management document from Seedsman Geotechnics for the expansion project that provides no specific information for Longwalls 4 and 5. The longwalls are not labelled in most the diagrams and it's difficult to see how the current proposal relates to the modelling reported in Appendix A.

The Biodiversity Management Plan (BMP) advises that if fracturing occurs remediation should be undertaken as soon as possible, prioritising areas where fracturing has resulted in a loss of surface flows. The BMP observes; "*To date remediation measures have been attempted at a number of sites with mixed results, and it is likely that many of these would not be applicable to natural features present in the Longwall 4 SMP Area. Grouting in the majority of creeks and swamps in the Longwall 4 SMP Area would be impractical and slope stabilisation works and drainage and erosion control would likely cause substantial damage to these natural features*."

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date remediation measures have been attempted at a number of sites with mixed results, and it is likely that many of these would not be applicable to natural features present in the Longwall 4 SMP Area. Grouting in the majority of creeks and swamps in the Longwall 4 SMP Area would be impractical and slope stabilisation works and drainage and erosion control would likely cause substantial damage to these natural features." Presumably the same is true of Longwall 5.

In contrast the Water Management Plan confidently asserts successful remediation of subsidence damage in the Georges River and Waratah Rivulet. While the mining companies responsible for the remediation may make this claim, independent assessments disagree. Grouting can only be applied in a small number of favourable locations, as the BMP suggests, and where it has been applied it may be contributing to a redirection of subsurface flows away from the local catchment.

The EA states that Geoterra have assessed that minor to no adverse change in flow and duration would be observed in seepage from the directly undermined swamps. Whereas the Water Management Plan belatedly provided in Appendix J suggests otherwise, commenting that the following would be within modelling predictions; *fracturing of bedrock in ephemeral drainage lines that are directly undermined, up to 3 month lowering of pool water levels and swamp seepage discharge reduction greater than baseline variability*.

The EA lacks an account of the local geology, for instance there is no mapping of the distance of the Bald Hill Claystone from the surface. The Water Management Plan indicates there are areas where it emerges at the surface. Pells provides an informative cross-section depiction that shows the Bald Hill Claystone rising towards the surface from west to east.

The Metropolitan Special Area is a Schedule 1 Area, not a Schedule 2 Area as the EA suggests. The EA makes no reference to the Sydney Drinking Water SEPP or its embodied Neutral or Beneficial Effect (NorBE) on water test.

.The planned expansion project has been determined to be a "controlled action" under the EPBC Act. Presumably this would also be the case for the proposed longwalls, yet there is no mention of this in the EA.

Subsidence

In Appendix E of the Environmental Assessment (EA) provided by Gujarat, Professor Philip Pells cautions that subsidence prediction is fraught with uncertainty, in large part because of geological unknowns. Pells cites the following examples:

- Appin Colliery LW703 – 33% to 52% over prediction.
- Westcliff Colliery LW34 – 10% under prediction.
- Tahmoor Colliery LW24A – 290% under prediction.
- Tahmoor Colliery LW26 – 100% under prediction

Another well-known example is that of Waratah Rivulet, where modelling failed to predict dramatic subsidence impacts along a two kilometre section of this important water course. Modelling for the longwalls impacts was undertaken by MSEC using the Incremental Profile Method that Pells otherwise describes as "excellent". MSEC attributed the significantly under-predicted vertical displacement to the geology of the immediate roof strata and strata layers within 150m of the seam

roof at Metropolitan Colliery. While events of this kind may be low in frequency, they have significant impact and cannot be ignored.

The longwalls that caused the dramatic damage to the Waratah Rivulet were 158 metres wide and only slightly wider than the 145 metre width of Longwalls 4 and 5 in the current proposal. Significantly, the mined Bulli seam is around 450 metres below the surface in the vicinity of Waratah Rivulet and so about 100 metres deeper than the Wongawilli seam of Longwalls 4 and 5, which are about 330 metres below Cataract Creek. In principle, it would seem the Waratah Rivulet is better protected than the surface features above Longwalls 4 and 5.

Like Longwall 4, the longwalls that damaged the Waratah Rivulet were approved via the approval of a SMP. A repetition of the damage inflicted on the Waratah Rivulet may be unlikely, but it can't be ruled out. The Gujarat project area has already been damaged by mining, as is evident in the Water Management Plan of Appendix J and is commented upon in Appendix E by Pells.

Further highlighting the uncertainty of subsidence prediction, the PAC observes in its report[1] on the Bulli Seam Operations proposal that "*strains are not necessarily uniformly distributed in accordance with theoretical predictions. For example, a predicted tensile strain of 1mm/m may eventuate in the field as a 5mm wide crack every 5m, or a 10mm wide crack every 10m*."

As far as we are aware there are no Southern Coalfield precedents for mining below two previously mined seams. Pells notes in Appendix E that MSEC propose a 10% to 20% increase of subsidence factors for the second mining, whereas Li recommends that a subsidence factor of 80% should be adopted for the second mining. No subsidence increase factors are suggested for a third mining, presumably because of a lack of precedent.

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Given the examples noted by Pells and that of Waratah Rivulet, clearly subsidence prediction cannot prudently be viewed as anything more than an impact gambling guide of uncertain reliability. The discussion in Appendix A on multiple seam subsidence further emphasizes the significant uncertainties. It is interesting to read in this section that Gujarat advise "*We are not willing to comply with the direction of the Sydney Catchment Authority to use the Li et al method*."

Subsidence impacts on swamps, surface waters and groundwater has been described in detail in the Southern Coalfield Inquiry report and the PAC reports for the Metropolitan Coal and Bulli Seam Operations (BSO) projects.

Groundwater

Deep groundwater impacts arise as a result of 'goafing' and a consequential subsidence induced connected fracture zone above the goaf. The height of this zone cannot be reliably predicted, but in the Southern Coalfields it is believed to vary between 1 and 1.5 times the width of the longwall

panel - *for single seam mining*. The extent of the highly connected zone following multi-seam mining will be increased by an amount that is not reliably known.

Longwalls 4 and 5 are 145 metres wide and have a depth of cover ranging from approximately 320 m to 340 m (note the Gujarat EA incorrectly states on page 2 that longwalls 4 and 5 have lengths of approximately 530 m and 115 m respectively, and a depth of cover between 300 m and 340 m below previously extracted Bulli and Balgownie seams). The highly connected and freely draining zone would not be expected to extend more than 200 metres or so above the longwalls. This estimate however is based on single seam mining, whereas Longwalls 4 and 5 are below two previously mined seams.

Given there is considerable uncertainty in estimating the likely extent of the highly connected and freely draining zone above Longwalls 4 and 5, there is a possibility that the zone may extend upwards beyond the Bald Hill Claystone. Accordingly it is not possible to entirely exclude the possibility of hydraulic connectivity from the surface to the underlying mine workings, with potentially significant impacts on shallow groundwater and surface water systems – and the mine.

Irrespective of the extent of the highly connected and freely draining zone above Longwalls 4 and 5, shallow groundwater will be impacted by fracturing in the vicinity of the surface as a result of 'sagging beam' bending, shear, tensile (stretching) and compressive forces. These forces produce in a zone of vertical fracturing and horizontal shear impacts that typically extend 15 to 20 metres below the surface. The EA suggests surface fracturing of this extent and the Water Management Plan in Appendix J torturously states "*Mine subsidence can delaminate and/or dilate erosion surfaces and bedding planes within and between strata which occurs preferentially along the interface between lithologies with different elastic properties. Enhanced interfacial permeability is therefore possible at sub-cropping sandstone and outcropping shale interfaces*." Though unclear, the latter sentence probably refers to the Bald Hill Claystone being exposed at the surface in various parts of the project area. This claystone layer would be damaged where it is within the surface fracture zone.

The creation of a surface fracture zone will change near-surface groundwater flows and may accordingly lead to losses from the local catchment, as the SCA believes has occurred as a result of damage to the Waratah Rivulet.[1,2] If the permeability of the strata immediately below the near surface fracture zone is increased, then shallow groundwater may also be redirected towards deeper flows and/or the highly connected and freely draining zone (assuming this hasn't extended to the surface fracture zone) that leads to the mine. Figure 1 depicts the Sydney Catchment Authority view of longwall mining impacts.

In a publication arising from the 2010 Congress of the International Association of Hydrologists, the Sydney Catchment Authority makes the following comment in assessing the damage to the Waratah Rivulet caused by longwall mining: "*If the fracture system has significant vertical extension and intersects one or more bedding planes, it is feasible that some water could join the regional groundwater flow system and water can be permanently lost to a neighbouring catchment. Alternatively, water could discharge several kilometers northeast on the cliff escarpment, where springs are known to occur*."[2]

The SCA believes that water is being lost from the catchment under low-flow conditions. The paper also makes the following observation: "*Prior to mining the streams in this area were usually connected-gaining, with groundwater level above the lowest streambed elevation. However, shallow piezometers located near the stream close to the edges of already mined longwall panels indicate that shallow groundwater close to the stream is affected by subsidence, causing the majority of groundwater levels to be below the streambed, causing the stream to be disconnected-losing with the diversion of surface water into subsurface voids*." This of course has dire implications for swamps as well as streams.

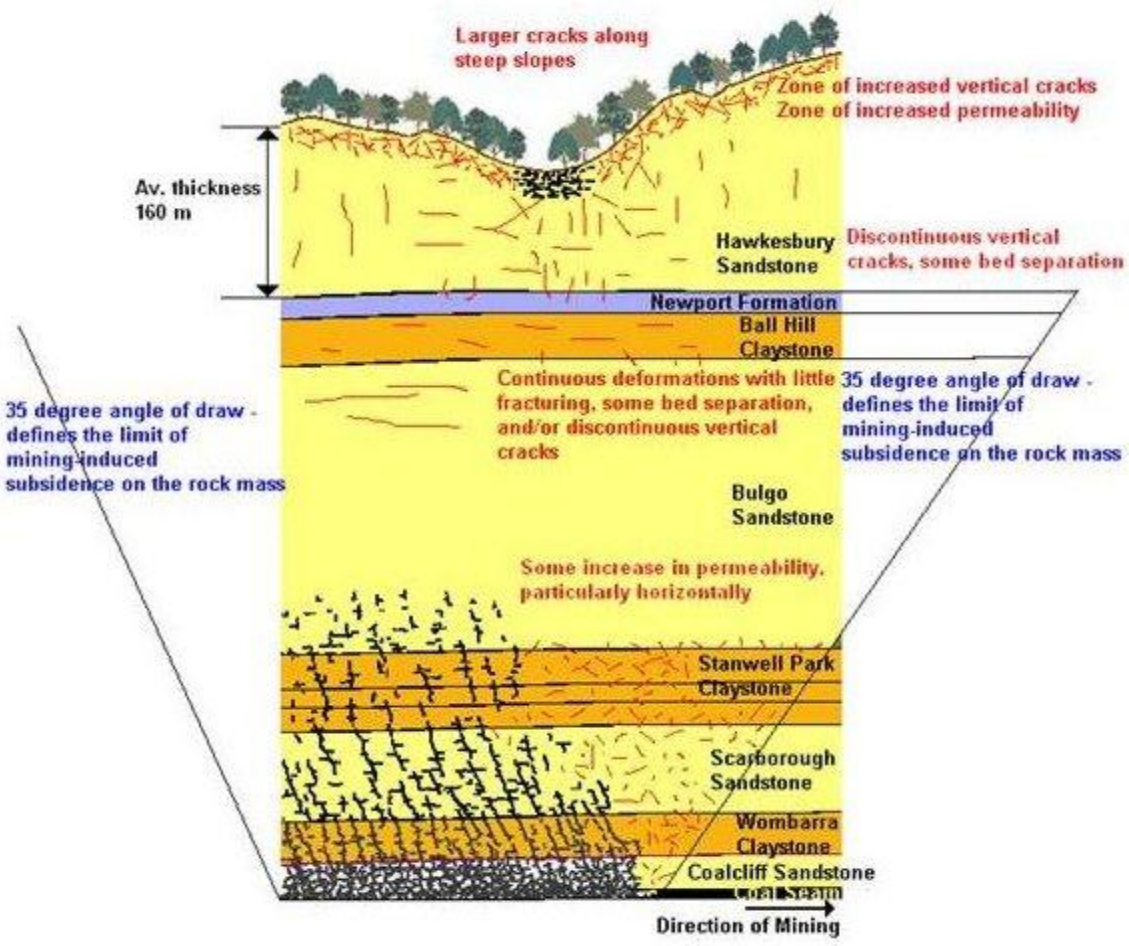

Figure 1. Sydney Catchment Authority depiction of the impact of longwall coal mining on the overlying sandstone and claystone layers, based on piezometric analysis of water flow changes. Subsidence breaks up the lower claystone layers and increases the permeability of the sandstone aquifers. Fresh and saline waters mix and water drains more readily into the coal mine. The graphic depicts the impacts of mining under the Waratah Rivulet and is representative of longwall mining impacts elsewhere in the Woronora Plateau. As a consequence the Waratah Rivulet has been transformed from a 'connected gaining stream' to a 'disconnected losing stream'.

Fracturing and deformation of otherwise low permeability strata may provide hydraulic connectivity between aquifers, such that they can no longer be regarded as confined. Echoing the concerns of the SCA, Madden states that "*increased lateral fracturing and connectivity within the same strata can be another consequence of subsidence movements, and in some situations may*

result in the diversion of stream flow and shallow groundwater away from the streams and the catchment of origin."[3(a)]

Subsidence and strata movements affect groundwater by deforming existing fractures, enlarging existing fracture apertures, creating new fractures, separating bedding planes and changing the hydraulic properties of the strata, such as porosity and permeability. Changes to hydraulic gradients, groundwater levels, and groundwater flow paths result.[3(a)] The SCA believes such changes have resulted in a loss of water from the Woronora Reservoir catchment.

Piezometer data from the Metropolitan Colliery (Bulli seam; 158 metre wide longwalls) in the vicinity of the Waratah Rivulet and Area 2 of the Dendrobium Colliery (Wongawilli seam; 245 metre wide longwalls) in the vicinity of Lake Cordeaux, show a subsidence induced increase in permeability in the zone between the highly connected and freely draining zone and the surface fracture zone.

The piezometer data also show that the highly connected and freely draining zone extends upwards through both the Wombarra and Stanwell claystone layers (respectively about 40 and 110 metres above the Wongawilli seam). These claystone layers are widely regarded as 'aquitards' and have been assumed to provide at least some protection from groundwater drainage and inflow into the mine beneath. As discussed below, Professor Pells and others question the industry preferred view of confined strata and of claystone layers acting as aquicludes. Work by Pells highlights the complex and variable character of the Bald Hill Claystone and finds that its permeability overlaps with that of the Hawkesbury Sandstone and other strata.

Reporting a detailed study in Area 2 of the Dendrobium Colliery, Madden states[3] the following: "*The investigation showed that all aquifers and aquitards in the deep groundwater monitoring network are influenced by mining. There were groundwater level declines, changes to aquifer conditions and groundwater flow directions, and leakage from upper to lower stratigraphic units. The investigation has provided a greater understanding of the hydrologic and hydrogeologic response to longwall mining, which can broadly be applied to other underground mines using longwall mining techniques*."

There are significant similarities between the Dendrobium Colliery and the Gujarat NRE 1 mine. Both mine the Wongawilli seam and both are in the immediate vicinity of stored water, streams and swamps. It would be highly irresponsible to ignore the lessons of Dendrobium. Madden comments on significant inflow events in 2007 and 2008 and subsequent inflow evens have been recorded in the end of panel reports for the Dendrobium Colliery. The SCA has expressed concerns for water loss at the Gujarat NRE 1 mine, commenting on "*… a reported loss of water in the vicinity of the V-Mains over subsided Bulli Seam workings*."

The Bald Hill claystone, typically some 250 or so metres above the Wongawilli coal seam, has traditionally been viewed as an effective aquitard able to insulate surface and near-surface waters from the depressurisation impacts of longwall mining. Reflecting this view the Water Management Plan states "*The depressurisation effects described below for the deep groundwater system is not anticipated to propagate up through to the Hawkesbury Sandstone, where the Bald Hill Claystone is present and maintains its low permeability*."

The industry preferred assumption that the Bald Hill Claystone acts as a protective aquitard or aquiclude has been contested since at least the time of the Reynolds Inquiry in the 1970s.[4] Recent work by Pells[5,6] further strengthens the case that the 'aquitard insulation' assumption is unrealistic and that the claystone permeability overlaps with that of the overlying Hawkesbury sandstone. Pells confirms the finding of Reid in 1996 that "… *permeabilities of the Bald Hill Claystone and the Hawkesbury Sandstone are of a similar order, despite their marked lithological differences*."[7] Pells advises that the Bald Hill Claystone contains as many as eight soil profiles, is fissured and jointed, and is transgressed in places by faults and igneous intrusions. It is not safe to assume the Bald Hill Claystone insulates surface waters from dewatering impacts. The Water Management Plan seems to recognise this in stating "*However up to 5m of depressurisation in the Hawkesbury Sandstone is predicted, which may generate up to 0.07ML/day reduction in flow to Cataract Creek, once all of the proposed panels in Wonga East are mined*." Pells points out monitoring data consistent with a vertical gradient propagating outwards form the mine area.

With permeability overlapping that of Hawkesbury Sandstone, the Bald Hill Claystone contains as many as eight soil profiles, is fissured and jointed, and is transgressed in places by faults and igneous intrusions. It is not safe to assume the Bald Hill Claystone insulates surface waters

The geological cross-section provided by Pells in Appendix E shows the Bald Hill Claystone rising to the surface from west to east, to 'break-out' at Cataract Creek. It seems likely then that the claystone layer will be fractured where it passes into the surface fracture zone, so increasing its permeability.

As Pells points out in Appendix E, it is reasonable to expect that Longwalls 4 and 5 will have an impact on near-surface ground-waters and surface waters, whether or not the highly connected and freely draining zone extends from the mine to the surface. As seam dewatering and drainage occurs a drawdown depressurisation wave will travel outwards from the mine and extend beyond the immediate subsidence zone. Though it may take some considerable time, it is reasonable to expect that at some point the thin aquifer that is swamp CRHS1 will be effected, even if it is not directly damaged by subsidence or upsidence.

The Swamps

The Biodiversity Management Plan provided in Appendix J points out that all the swamps within the Wonga East domain of the NRE 1 mine form part of a medium sized swamp cluster located between Cataract Creek in the north and Cataract River to the south. Illustrating the importance of protecting the swamps, the SCA advises that inflows to the Woronora Reservoir from the Waratah Rivulet are greater than from the Woronora River because of the baseflow release of water from swamps in the vicinity of the Waratah Rivulet. In periods of reasonable rainfall the Waratah Rivulet provides 30% of the inflow to the Woronora Reservoir. Importantly, in dry times it provides up to 50% of the inflow to the reservoir. All of the swamps should be protected in the interests of long term water security.

In March 2012 the Upland Swamps were listed by the NSW Scientific Committee as an Endangered Ecological Community (EEC) under the NSW Threatened Species Conservation (TSC) Act. In a

lengthy summary of longwall mining impacts, the listing points out that longwall mining was listed as a Key Threatening Process under the TSC Act in 2005. A listing of the swamps under the Commonwealth Environmental Protection and Biodiversity Conservation Act is expected in the very near future and moves are afoot to obtain a RAMSAR listing. The swamps are exceptionally species rich with up to 70 plant species in $15m^2$ and are habitats of particular conservation significance for their biota. They present a biodiversity pool of global standing.

Figure 2. Collapsed and eroded Swamp 18 following longwall mining.

Figure 3. Cracked swamp bedrock above the Dendrobium Colliery

Figure 4. Dried and cracked swamp sediment above the Dendrobium Colliery

The Gujarat proposal notes that there are seven upland swamps (referred to as CRHS1, CRHS2, CRHS3, CCHS1, CCHS2, CCHS3 and CCHS4) either directly above or in the very near vicinity of the proposed development. Of these CRHS1, CCHS3 and CCHS4 are highlighted as having "special significance status" under DECCW 2011 draft guidelines on upland swamps. CCHS3 (3.5 ha) and CCHS4 (1.8 ha) include Tea-Tree Thicket communities and the PAC points out Tea-Tree Thicket are a swamp community having the "most limited community in terms of occurrence and extent". Tea-Tree Thicket is rare because it requires a permanently wet habitat.

Adding to the value of the swamps, Aboriginal site 52-3-0322 is located on the eastern margin of CRHS1 and Aboriginal site 52-3-0320 is mapped as occurring on the eastern margin of CCHS3.

CCHS3 and CCHS4 are in the vertical subsidence zone of longwall 5, with CCHS3 being directly undermined by longwall 5 where vertical subsidence is estimated to be 1.15 m, with up to 17 mm/m in tilt and between -10 to +12 mm/m strain. The NSW Planning Assessment Commission (PAC) has stated the following; "*Fracturing of sandstone has generally been observed in the Southern Coalfield where the systematic tensile and compressive strains have exceeded 0.5 mm/m and 2 mm/m, respectively*".

There can be no doubt that CCHS3 and CCHS4 will be impacted by longwall 5, possibly fatally. These swamps may have already suffered impacts from prior mining. Aboriginal site 52-3-0320 will also be very vulnerable to Longwall 5.

The PAC makes the following observations in its report on the Bulli Seams Operations proposal[1]:

> "*In the 18 months or so since the Metropolitan Coal Project information was collated, the focus of some government agencies and NGOs has been on gathering information on some*

swamps that have been recently undermined by longwalls. The information points to significant impacts on the hydrology of the swamps in question and the potential for serious environmental consequences. The swamps brought to the Panel"s attention are Dendrobium Swamp 1, East Wolgan Creek Swamp-Newnes Plateau, Kangaroo Creek-Newnes Plateau, Junction Swamp-Springvale Colliery, Swamp 18-Elouera Colliery, and Swamp 32. In addition to these, the Panel observed that multiple swamps either side of an undermined (and severely impacted) reach of Lizard Creek appeared to be dry and undergoing compositional change from invasion by wattles and eucalypts. Swamps associated with the unaffected reaches of Lizard Creek did not show these same characteristics.

This Panel and previous Panels[143] have sought examples of dessicated swamps that have not been undermined but none have been forthcoming to date. The limited monitoring data that is available is not adequate to preclude mining induced subsidence as the root cause of changes in the hydrology of at least some, if not all, of the swamps noted above. At this point in time, neither conventional nor unconventional subsidence effects, singly or in unison, can be eliminated as the source of changes in swamp hydrology."

The PAC includes Swamp 1 in Dendrobium Area 2 as an example of an impacted swamp and clear evidence for this is provided in piezometer monitoring records. More recently monitoring of twenty seven shallow piezometers located within Swamps 12, 15a, 15b and 16 has shown impacts to swamps 12, 15B and 16 in Dendrobium Area 3A as a result of the passage of Longwall 7 earlier this year. The end-of-longwall report conservatively concludes "*Based on the available data obtained from the piezometers and nearby rainfall stations, it appears that shallow groundwaters in Dendrobium Area 3A, particularly those associated with Swamp 15b in sub-catchment (of Sandy Creek) SC10C have been impacted by subsidence resulting from the mining of Longwall 7*." The then DECW identified Dendrobium Area 3A as a reference area to monitor before approving further undermining of swamps.

Figure 5. Dessicated swamp vegetation above the Dendrobium Colliery.

The swamps are effectively wide but thin and fragile local aquifers inherently vulnerable to subsidence damage and dewatering effects. The evidence of harm to swamps caused by longwall mining is overwhelming. It is no longer credible or acceptable to take a 'Japanese whaling' approach and allow further harm to these Endangered Ecological Communities on the basis of yet further information gathering.

The 2010 BSO report notes that DECW identified Dendrobium Area 3A as a reference area to monitor before approving further undermining of swamps. The May 2012 end of panel report for Dendrobium Longwall 7 in Area 3A shows damage to swamps 12, 15B and 16. The evidence of harm to swamps caused by longwall mining is overwhelming. It is no longer credible or acceptable to take a 'Japanese whaling' approach and allow further harm to these Endangered Ecological Communities on the basis of yet further information gathering.

The Subsidence Monitoring Plan for Longwalls 4 and 5 (Appendix J) states that the NSW Division of Resources and Energy (DRE) requires performance criteria with negligible environmental consequences for the swamps CRHS1, CCHS3 and CCHS4, including:

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

The PAC specifies negligible to mean "*small and unimportant so as not to be worth considering*". Satisfying the DRE criteria is clearly not possible for the swamps within the subsidence zone of Longwall 5 and may well not be possible for CRHS1 which is within the immediate vicinity of the longwalls and within the SMP zone and management/application area.

Swamp CRHS1 is well within the Longwall 5 subsidence impact zone defined by the 35 degree angle of draw accepted for the Southern Coalfield. The swamp is 75 metres from the end of the longwall and the impact zone would extend outwards for at least 200 metres. Reflecting the extent of the impact zone, the length of Longwall 4 has been curtailed to avoid impacts on Mt Ousley Road. Accordingly Longwall 4, like Longwall 5, is about 300m from Mt Ousley Road. In contrast CRHS1 is about 75m from Longwall 5 - well within the 35 degree angle of draw subsidence impact zone. Risking harm to repairable public roads is not acceptable, but risking harm to priceless and irreparable natural feature is acceptable.

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Remediation of swamps is not possible and the PAC observes "*For swamps there is no solid evidence that self-sealing occurs at all, or is 100 percent effective if it does occur*." By the time monitoring has established swamp impacts it may well be too late to prevent the decline of the impacted swamp.

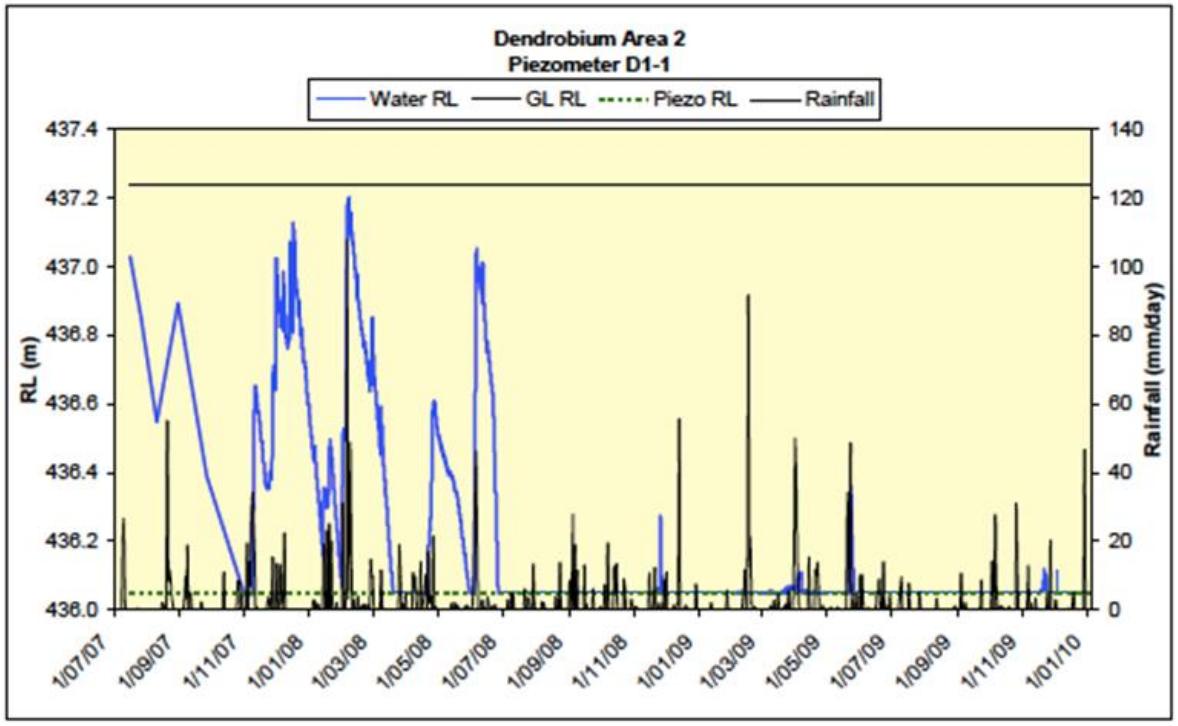

Figure 6. Shallow groundwater piezometer (blue line) readings before during and after mining of longwall 5 in Dendrobium Area 2. The piezometer stops responding to rain as a result of mining, with the water level dropping.

The EA enigmatically states "*Monitoring of perched groundwater within valley fill and upland in the broader study area, has been shown to fluctuate between no standing water after extended dry periods to approximately 1.8 m below ground surface*." The meaning of this statement is unclear, but suggests significant impacts on swamps and/or near-surface waters (see Figure 6 for a relevant example). The Water Management Plan of the updated Appendix J describes difficulty in installing piezometers in the dry soils of CCHS3 and CCHS4. It may well be then that these swamps have already been damaged by previous mining. Approval of the current proposal would of course compound existing damage.

Approving Longwalls 4 and 5 would approve the loss of the nearby swamps. The Gujarat EA states "*If these subsidence effects result in changes to groundwater and drying of soils they may result in the loss of wetter sub-communities (Tea-tree Thicket) and contraction of Upland Swamps along with resultant encroachment of surrounding woodland communities*." The EA foreshadows the loss of the swamps; swamps of special significance status and listed as Endangered Ecological Communities under the TSC Act.

Approving the development proposed by Gujarat will contradict the purpose of the March 2012 Endangered Ecological Community listing of the swamps under the NSW Threatened Species Conservation Act. The TSC Act listing declaration provides considerable detail on the importance

of the swamps. As mentioned, the declaration lists longwall coal mining as a threat and points out that longwall coal mining has been listed as a Key Threatening Process under the TSC Act.

Approving the development proposed by Gujarat would ignore the repeated statements by the Sydney Catchment Authority (SCA) emphasising the vital role of the swamps in the Special Areas. The SCA's view of the importance of the swamps has been recognised and accepted by the PAC. The PAC states that the swamps "*act as significant regional water stores providing baseflow to the drainage systems of the plateau*". The PAC also states that it "*regards the hydrology of swamps to be especially vulnerable in view of their thin plate-like structure*" and "*They are, in effect, very thin plate-like aquifers*."

In discussing the role of the swamps the PAC states: "*The conventional wisdom that the upland swamps are perched systems and not in contact with the underlying groundwater systems rests on very little hard evidence. Swamps in the Kangaloon area are reported in the EA as perched but these swamps are situated some 30 km to the south and are relatively small in areal extent. There is a real possibility that the larger swamps of the Woronora Plateau and the high density of swamps have, over the course of time, sustained an elevated water table that is very close to or connected with the base of swamps. Subsidence induced disturbance beneath swamps may have wider implication for regional groundwater flows*." The PAC also observes that it and others have " … *sought examples of desiccated swamps that have not been undermined but none have been forthcoming to date.*"

Approving the development proposed by Gujarat will ignore the value of the swamp cluster located between Cataract Creek in the north and Cataract River to the south.

Approving the development proposed by Gujarat would ignore the expectation that the swamps will soon be listed under the Commonwealth Environmental Protection and Biological Conservation (EPBC) Act. The PAC summarises reasons for an EPBC listing of the swamps in its report on the BSO project.

Surface Waters

The Subsidence Monitoring Plan for Longwalls 4 and 5 (Revision 7 of July 30 2012) states that the NSW Division of Resources and Energy (DRE) requires performance criteria with negligible environmental consequences including:

- *negligible diversion of flows or changes in the natural drainage behaviour of pools;*
- *negligible gas releases and iron staining; and*
- *negligible increase in water turbidity*

The PAC specifies negligible to mean "*small and unimportant so as not to be worth considering*" and further states[1]:

> *The Panel therefore recommends that the definition of "negligible impact" for rivers and streams should be: "no diversion of flows, no change in the natural drainage behaviour of pools, minimal iron staining, minimal gas releases and continued maintenance of water quality at its pre-mining standard".*

.Acknowledging existing damage, Cataract Creek has been recognised by the Planning Assessment Commission (PAC) as having "*highly significant values*" making it "*worthy of protection.*[1]

Approximately 800 metres of Cataract Creek is located in the proposed subsidence management area. The creek passes over the north eastern first workings and is 30 metres from Longwall 5. Cataract Creek is well within the 200 metre subsidence impact zone defined by the 35 degree angle of draw accepted for the Southern Coalfield.

Figure 7. Loss of flow in Lizard Creek and Waratah Rivulet following longwall mining. Other examples include Cataract River, Georges River, Native Dog Creek and Wongawilli Creek.

As the Gujarat Environmental Assessment (EA) implies, Cataract Creek will suffer the now well documented impacts of subsidence in the region and these impacts will not be negligible. The Gujarat EA advises "*it is not possible to exactly define the potential magnitude of these losses or the lengths of streams likely to be impacted*." It is of note that the proposed panel widths are much the same as those responsible for the severe damage to the Waratah Rivulet and its tributaries. The depth of cover above the seam being mined is some 100 metres greater at the Waratah Rivulet than at Cataract Creek.

The Gujarat EA optimistically states "*The impacts are likely to be restricted to short reaches where flow infiltrates into cracks in the bed, then remerges further downstream*." Some of the diverted flow may be lost from the Cataract catchment, as the Sydney Catchment Authority believes has occurred in the damaged section of the Waratah Rivulet in the Woronora Catchment. The optimistic expectations of the Gujarat EA do not constitute negligible impacts.

Low order streams play a vital role in connecting upland swamps to higher order streams. Evidently originating at the edge of swamps, two first order streams join together directly over Longwall 5 to form a second order tributary to Cataract Creek; these streams will be severely impacted by the subsidence over Longwall 5. A first order stream is associated with swamp CCHS3 over Longwall 5. There is also a first order stream emerging from the northern side of CCHS4 .

Figure 8. Loss of flow in Wongawilli Creek following longwall mining.

Water protection required under the law

The Environmental Assessment and Planning (EP&A) Act 1979 requires a consent authority to "*refuse to grant consent to a development application relating to any part of the Sydney drinking water catchment unless the consent authority is satisfied that the carrying out of the proposed development would have a neutral or beneficial effect on the quality of water*." Given the role of swamps, damage to swamps inescapably fails the Neutral or Beneficial Effect (NorBE) on water test, in contravention of the EP&A Act.

In the interests of the proponent and consequential State revenue, and ignoring considerations of cumulative impacts, the meaning of neutral could of course be 'redefined' and blurred by the consent authority admitting some 'negligible' deviation from neutral and accepting some level of damage to swamps. The public could then have no respect for the consent authority or the legislative framework within which it operates. Cumulative impacts cannot be ignored.

Biodiversity

As mentioned the Coastal Upland Swamps of the Sydney Bioregion has been listed as an Endangered Ecological Community under the NSW Threatened Special Conservation (TSC) Act. The listing by the NSW Scientific Committee summarises the impacts of subsidence on these complex and biologically rich communities. Most of the Coastal Upland Swamps of the Sydney Bioregion are located on the Woronora Plateau, most of those are within the Schedule 1 Special Areas and most of those are within the Metropolitan Special Area.

The Biodiversity Management Plan (BMP) provided in the updated Appendix J points out that swamps CRHS2, CRHS3, CCHS1, CCHS2 and CCHS4 are mapped as potential habitats for the Giant Burrowing Frog and Littlejohn's Tree Frog, which are listed as vulnerable under the TSC Act and the Commonwealth Environmental Protection and Biodiversity Conservation (EPBC) Act. The BMP tabulates a number of other fauna and flora species listed as endangered, threatened or vulnerable under TSC and/or EPBC Acts.

There is increasing recognition of the importance of protecting and nurturing biodiversity; this widely acknowledged need can no longer be dismissed as an irritating obsession of fringe 'greenies'. The CSIRO for instance has recently released a report recommending an expansion of national parks as a response to the threat to biodiversity posed by climate change. Coal mine emissions of course contribute to global warming.

Biodiversity, like water, is fundamentally essential; coal is not.

Economic Benefit

Annually coal mining in the Southern Coalfields contributes approximately 10% of the State's coal mining royalties, which provide approximately 2-3% of the total State revenues. The Southern Coalfields employ 2,500 people of some 180,000 employed in the region. Employment levels have declined with the introduction of improved machinery and equipment, as is the case for Gujarat NRE.

Substantial sums of money are invested in mining equipment, but much of that equipment is manufactured overseas. The longwall machine recently purchased by Gujarat for instance was made in China. Most coal mining companies are either multinationals or entirely foreign owned, and their profits largely flow overseas.

In promoting the purported benefits of coal mining, proponents and Government fail to fully assess the impact costs of mining, which include increasingly evident and largely quantifiable health and utility infrastructure costs to the tax payer and largely unquantifiable short and long term environmental and social costs. The toxins and compounds produced when coal is burnt include

mercury, sulfur dioxide, nitrous oxides and fine particulates which penetrate deep into our lungs. Coal combustion is a leading driver of climate change. It is folly not to assess the full life cycle costs of coal mining and usage.

In contrast to the readily assessed and relatively limited benefit of longwall coal mining, the ongoing inter-generational value of protecting the catchments that currently provide water to some five million people and harbour high biodiversity communities cannot be financially assessed.

The value of the Special Areas goes beyond the provision of high quality drinking water; a role which in principle could be augmented or replaced by filtration and/or desalination plants. Sydney has already had to invest $2 billion in a desalination plant to meet water supply demands during drought. Southern Coalfield royalties might pay for the plant over twenty years or more, but the tax payer continues to pay for the very high operating costs.

The relevant irony of the Special Areas and Dharawal National Park

After more than two decades of community lobbying, in March 2012 the NSW Coalition Government declared the Dharawal National Park, so honouring a pre-election commitment. This followed the lapsing of coal mining leases that had apparently prevented the previous Labor Government from honouring its 1993 pre-election commitment to establish the national park. Mining is banned within the Dharawal National Park.

In effect the declaration of the Dharawal National Park 'absorbed' and replaced the Dharawal State Conservation Area and the Dharawal Nature Reserve. While mining is possible within state conservation areas, in practice it would require closure of otherwise publicly accessible areas. BHP Billiton's large and complex Bulli Seam Operations (BSO) project nonetheless proposed mining beneath the then Dharawal State Conservation Area.

The area defined by what was the Dharawal State Conservation Area and Nature Reserve largely coincides with the Sydney Catchment Authority managed Schedule 2 O'Hares Creek Special Area, which was declared in April 1927. Prior to the declaration of the Dharawal National Park, the O'Hares Creek Catchment of the O'Hares Creek Special Area had been recognised by the Federal Government as being of National Environmental Significance, with National Estate listing.

The BSO proposal posed a significant dilemma for the then Labor State Government and a public relations challenge for BHP Billiton. Approving the BSO project would yield royalties, but this would require finally abandoning a long standing Labor commitment to protect the area. It would also require closing the state conservation area to the general public - an area for which there was a compelling case, and strong community demand, for full protection from mining.

In this context, in July 2010 the NSW Planning Assessment Commission released a highly critical assessment of the BSO Project. The BSO report rejected BHP-Billiton's environmental provisions, recognised the importance of the area's natural surface features, set negligible-impact benchmarks for natural features such as rivers, streams and the upland swamps and criticised the process by which environmental impact assessments (EAs) are provided by project proponents.

Evidently accepting that there was very little realistic prospect of ever gaining mining approval, in October 2010 BHP-B abandoned its plans to extract coal from the Dharawal State Conservation Area and eighteen months later Dharawal National Parl was declared and mining was banned within its borders - to the centre of the Earth.

The declaration of the Dharawal National Parl exposed a significant irony. The Schedule 2 O'Hares Creek Special Area sits between the Schedule 1 Woronora Special Area on its northern border and the much larger Schedule 1 Metropolitan Special Area on its southern border. While the natural features that are protected within the National Park know no nothing of borders, unauthorised public access to the neighbouring Schedule 1 Special Areas is not permitted. The Schedule 1 Special Areas are intended to protect the immediate catchment area for the SCA managed water reservoirs.

The O'Hares Creek Special Area has a relatively small Coastal Upland Swamp community; in contrast the Metropolitan Special Areas harbours a large community, most of which is concentrated in its north eastern corner just over the southern boundary of the O'Hares Creek Special Area. Four swamps clusters are regarded by the NSW Office of Environment and Heritage as having particular significance in providing large contiguous areas of related habitat; all are the in the Metropolitan Special Area.

Ironically, with all of its runoff going into the Georges river, the declaration of the Dharawal National Park does nothing to protect the drinking water supply for Greater Sydney, the Illawarra or Southern Highlands. Just over the fence in the Schedule 1 Special Areas next door, from where the public is banned, mining companies daily damage the catchments.

Ironically, the declaration of the Dharawal National Park does nothing to protect the drinking water supply for Greater Sydney, the Illawarra or Southern Highlands. All of the runoff from Dharawal runs into the Georges River, making no contribution to the region's water supply. While mining is now banned in the Schedule 2 O'Hares Creek Special Area (Dharawal National Park), mining is not banned in the adjacent Metropolitan and Woronora Schedule 1 Special Areas. Mining continues to cause damage daily in the Schedule 1 Special Areas.

In effect, the Schedule 1 Special Areas are 'fenced-off' special mining areas where mining companies may carry out catchment-damaging operations out of sight of the banned general public. Conversely, next door in the Dharawal National Park mining companies are banned so that the general public can enjoy a picnic - with no risk them harming the catchments.

The longwalls sought by Gujarat are in the Metropolitan Special Area, where the public is banned. The longwalls are not in a state conservation area that would have to be closed to allow mining to safely proceed, and where the public would otherwise see the damage the PAC approves.

Comments on Gujarat NRE

Gujarat NRE have established a track record of non-compliance. Management plans required for the approved Preliminary Works project have been months overdue and the company was months late

in establishing a Community Consultative Committee (CCC). The formation of a CCC in accord with DoPI guidelines by a fixed date was a requirement of the Preliminary Works project approval.

Six months into the approval period for the Preliminary Works project, prompted by concerns raised by the community, the DoPI initiated a compliance investigation in April of this year. Four months later there has been no finding and no penalty. At the time of writing, the first anniversary of the three year project is just a few weeks away.

Gujarat have twice been penalised $1,500 by the EPA and the SCA has very recently fined Gujarat $1,500 for damage caused to swamp and *Pultenaea aristata* during the establishment of subsidence monitoring equipment for Longwall 4.

Some three months into the project approval period and three months before the due date, Gujarat attempted to form an alternative to the conventional Community Consultative Committee (CCC) utilised by other mining companies. Gujarat relentlessly sought to impose what was clearly an unwieldy community advisory system that was not in accord with the DoPI CCC guidelines. A group of community members selected by Gujarat as an engagement framework development oversight and design group (Community Review Team) repeatedly advised the company that the CCC alternative being pursued was not in accord with DoPI guidelines, would not be functional and was not acceptable. Gujarat ignored the advice and requests of the oversight group and in doing so made it clear that the company was not sincerely engaging in a consultation process. Remarkably, the company suggested to the DoPI that it was the community that sought a CCC alternative.

Though having refused to meet with community representatives to discuss their concerns, the DoPI eventually agreed with their position and a conventional CCC has since been formed. A CCC was required to have been formed and operating by April 13 2012; it was instead formed in July and its first meeting was held on the 21st of August - some 10 months into the projects three year approval period.

The DoPI will be well aware that the account of the formation of the CCC given in the EA is incorrect and very misleading. The account suggests a company acting in accord with requirements and sympathetic to the interests of the community. The correspondence between the company, DoPI and community representatives makes it clear however that this not the case. It is disappointing and disturbing that the DoPI appears to knowingly accept the misleading account given in the EA.

A pattern is emerging that reveals Gujarat have adopted a step-by-step approach to expanding their NRE 1 mine, having so far failed to successfully submit an application for the expansion project. A Part 3A application titled ‘‘NRE No. 1 Mine Project’ (MP09_0013) was submitted in early 2009 for “*for the consolidation of its existing operations, continuation of operations and upgrade of associated surface facilities at NRE No. 1 Colliery*”. Director-General’s environmental assessment requirements were issued in March 2009. At some unknown point this project application was withdrawn. An "Underground Expansion Project" application was submitted by Gujarat in August 2009, apparently again under MP 09_0013 and again for the “*consolidation of its existing operations, continuation of operations and upgrade of associated surface facilities at NRE No. 1 Colliery*”. The application included a preliminary Environmental Assessment (EA) and this document is available from the DoPI Website. Director-General requirements were issued in the same month. The DoPI received a draft EA for the expansion project in February 2011. There

appear to have been no further submissions for MP09_0013 from Gujarat. A substantial amount of the material in Appendix J of the current Modification application would appear to be associated with the Underground Expansion Project.

The Preliminary Works proposal was submitted as a Part 3A application (MP10_0046) in March 2010 to extract remnant coal reserves within stipulated mining areas, and augment and upgrade existing infrastructure including surface facilities. The application was approved in October 2011, in spite of agency opposition and opposition from Wollongong Council. As mentioned, a number of management plans required under the approval are believed to remain outstanding and there are submitted plans that have yet to be approved.

Seeking to side-step the need for approval under the Environmental Planning and Assessment Act 1979 (EP&A Act), sometime around September 2011 Gujarat submitted a subsidence management plan (SMP) for Longwalls 4 and 5 to the Division of Resources and Energy (DRE) in the Department of Trade and Investment. On 24 February 2012 Gujarat advised the Australian Stock Exchange that they intended to commence mining of Longwall 4 from 13 March 2012. The DRE approved a SMP for Longwall (LW) 4 on 26 March 2012, subject to meeting certain conditions and the provision of additional documentation. Longwall 5 was not approved, being directly beneath significant upland swamps.

Gujarat have succeeded in being able to abuse a transitional legislative provision (clause 8K) put in place to address the problem posed by a small number of mines operating without EP&A Act approval for historical reasons.

Gujarat have succeeded in being able to abuse a transitional legislative provision (clause 8K) put in place to address the problem posed by a small number of mines operating without EP&A Act approval for historical reasons. Apparently unhappy with the use of the transitional legislation, the DoPI initially refused to endorse the DRE approval of the Longwall 4 SMP. Following a subsequent series of meetings with Gujarat, the DoPI changed its mind.

The provisions of the transitional legislation were to end on the 31st of December 2011, however the termination date was changed to March and then the 31st of July and then September 30th this year. The current modification proposal to add Longwalls 4 and 5 to the Preliminary Works project was submitted in August 2012

The transitional provisions exploited by Gujarat were not intended to allow the introduction of new longwalls and the legality of the approval is currently the subject of a 'David and Goliath' court challenge by the community group Illawarra Residents for Responsible Mining.

It is surely reasonable to suggest that the legislative provisions of NSW should not be subverted to facilitate the commercial imperatives of developers. It is surely reasonable to suggest that the DoPI should act in the public interest and not yield to the commercial imperatives of developers.

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Comments on the Role of the Department of Planning and Infrastructure

The environmental assessment (EA) for the current proposal lacked referenced material and contained errors and misleading statements. The EA referred to material in Appendix J that became available on the Department of Planning and Infrastructure's (DoPI's) Web site on Wednesday August 29. The DoPI were unaware that material was missing until members of the pubic expressed concern. When the missing management plan information was pointed out to the DoPI, the presumptive, dismissive and bewildering response was that the general public did not need to see these documents and few would want to see them.

A corrected commitments section of the proponents Environmental Assessment was provided by the DoPI to one person late in the afternoon of Friday August 31. This revision does not appear to have been made available on the Department's Web site and seems to have appeared on the proponent's site sometime between Friday August 31 and the closing date of Monday September 3.

The EA refers to approved management plans that it seems have not been approved (discussed further below). With omissions, misleading statements and corrections made 'on the run', this proposal was clearly not ready for public exhibition.

The SCA expresses similar concerns about the Preliminary Works proposal; "*The SCA is concerned there are discrepancies in the EA including different mine layouts for the V-Mains; inconsistent Wallandoola Creek characterization plans; and no groundwater monitoring within the V-Mains area*".

Failure to comply with the Preliminary Works project approval requirements and a number of other issues led to a DoPI compliance investigation being initiated earlier this year. As noted above, to date there has no finding or penalty.

The DoPI's evident tolerance of Gujarat's tardiness, omissions and misleading statements is sharply contrasted by its dismissive responses to the concerns of the public. The current Modification proposal has more than 900 pages of documentation associated with it, yet it was made available for public comment for just three weeks. Perplexed members of the public requested an extension of the submission deadline, pointing out the extensive documentation and that working members of the community with family and other personal commitments had little time in which to read, absorb and comment on the proposal. The Department refused the extension requests, suggesting instead that initial submissions be submitted by the fixed deadline with the option of subsequently providing a revised submission. This concession provides little relief for those making submissions, with most preferring not to take a staged approach.

In responding to the requests for a deadline extension, the DoPI commented that it was only obliged to provide a two week exhibition period. Evidently the community was to be grateful for the generosity of a three week submission period. Gujarat initially advised that the exhibition period was four weeks, but amended that advice when it learned the DoPI period was three weeks. Another mistake it seems.

While the DoPI refused to grant a deadline extension to the general public, it readily tolerates late submissions from Gujarat. When community representatives requested a meeting with DoPI to discuss their concerns with the approach Gujarat was taking to the formation of a CCC, they were refused.

It is difficult to conclude other than that the NSW assessment and regulatory system, as manifested in the DoPI, is biased in favour of the developer. It is difficult to conclude other than that the DoPI's determination to facilitate the interests of the project proponent, in contrast to its dismissive response to the concerns of the general public, reflects regulatory capture.

The Federal Senate Inquiry into the management of the Murray Darling Basin and the impacts of coal seam gas highlighted the long standing concern that governments and their agencies act under a corrupting conflict of interest. That is, the adjudicator and regulator is also the recipient of revenues from project proponents. Senator Edwards asks an industry spokesperson "*how long do you think it is going to be before the community expects there to be an independent umpire for regulation of this industry and what have you with regard to the current problem where the recipient of significant royalties and benefits from the coal seam mining—gas explosion in terms of growth—is also the regulator of all the environmental and community issues?*"[8]

The community is of course very well aware of this conflict of interest. While the PAC is formally an independent body set up in response to community concerns, noting its members are appointed by the Minister for Planning and Infrastructure by a selection process that is not given on the PAC Website, the DoPI is an agency of government. The DoPI is pivotal in determining proposal outcomes and the specification and adjudication of approval conditions and requirements. The DoPI may or may not accept the recommendations of the PAC. For instance the PAC made the following recommendation in its report on the Metropolitan Expansion Project; "*The Panel recommends that a specific program be developed between the Sydney Catchment Authority (SCA) and the Proponent to further investigate the existence or otherwise of catchment yield impacts*." That recommendation was not included in the conditions of approval for the contentious project and that recommendation has not otherwise been acted upon.

Suggestive of the concerns of Senator Edwards, in its report on the Bulli Seam Operations (BSO) project the PAC commented on the lack of credibility in having proponents select and fund consultants to undertake environmental assessments. That clearly corrupting system remains in place.

As government agencies the SCA and OEH provide expert advice and recommendations that the DoPI may choose to accept or set aside; there is a substantial history of the latter. The DoPI explains their liberty as necessary in considering the 'bigger picture'. Few beyond the concerned community will be aware of this hierarchy in the NSW assessment and regulatory system. Choice

modelling manipulations aside, most would expect that if the SCA determined that a proposal posed an unacceptable risk to the Special Areas, then that activity would not be allowed to proceed.

Instead however the DoPI may judge that a degradation of the Special Areas is acceptable when balanced against its assessment of revenue, investment and employment benefits - even if that might ultimately require a new filtration plant or perhaps a desalination plant. This was the response when a very senior member of the DoPI was asked in May of this year of the consequences if what is already known of the impacts of longwall mining were to be propagated across the leases held over the Special Area lands and waters. The SCA expects more than 90 percent of the Special Areas to be undermined over the next twenty years. Each project approval is a step towards that expectation.

The front cover of this submission depicts the then Opposition Leader campaigning to protect water from coal mining. In Government and corrupted by royalty revenue that "common sense" is forgotten. The Premier and his minsters will argue that they have to take tough decisions to balance the budget. Maybe, but there is a limit to what can sensibly be sacrificed for the next budget and the following election. Biodiversity is far more important than coal. Water is far more important than coal.

Comments on the role of the Planning Assessment Commission

In its brief report recommending approval of Gujarat's Preliminary Works Project the PAC states

"*It is clear from the submissions and the assessment report that there are substantial concerns with the proposed future expansion project. However, the Commission has not seen this proposal and is in no position to form any view on it. Consequently, the Commission's decision on the project application before it cannot be construed as any form of endorsement of any aspect of this future expansion project.*

That said, the Commission considers that separation of project applications where the primary purpose of the first is to facilitate the second could lead to lack of public confidence in the NSW assessment and regulatory systems and must be considered undesirable. In this context it should be noted that major regulatory authorities and Wollongong City Council were among those submitters who raised the concern."

That is, the PAC is well aware that there is a significant level of concern among relevant agencies such the SCA and Wollongong City Council and recognises that such concerns would not be groundless. The PAC nonetheless sets the agency concerns aside, with a determination not to know anything of the expansion project. The 'see no evil' attitude expressed in the PAC report contradicts its earlier recognition of the need for caution in considering environmental impacts, which was expressed in some detail in the report on the Bulli Seam Operations (BSO) project.

Choosing to ignore the expansion project may perhaps be legally defensible within the current legislative framework in NSW and welcomed within Government, but it is not morally defensible and it surely offends basic common sense**.** That abdication of responsibility would be compounded if the PAC likewise buried its head in the coal of the Modification proposal

The PAC is a tad late in recognising the risk of losing public confidence. Given the almost relentless and statistically unlikely record of project approvals, community confidence in the PAC is all but gone and community confidence in the DoPI is long gone.

The PAC's stern statement that approval of the Preliminary Works cannot be construed as any form of endorsement of the planned expansion is a statement for the record that in practice means nothing. Gujarat would without doubt see approval of the Preliminary Works project as a step toward approval of the expansion project; the water has been tested and the next step towards expansion will follow. The current 'Modification' proposal is the third step, with DRE and DoPI having assisted with the 'tricky' second step around the obstacle that is the Environmental Planning and Assessment (EP&A) Act.

The PAC approval of the Preliminary Works states; "*The Commission is aware that development of this infrastructure could be used to pressure both decision makers and regulators in relation to this future expansion project. However, the Commission notes that the Proponent in response to these submissions confirmed that it would be developing the infrastructure at its own financial risk*."

Again a statement for the record that means nothing in practice. In approving the Preliminary Works project the PAC has initiated substantial investment in infrastructure needed for longwall mining in the Metropolitan Special Area. The history of PAC and DoPI approvals give Gujarat, and other mining companies, every reason to confidently expect follow-on approvals.

That confidence can be found for example in Peabody undertaking mine works, installations and de-gassing well in advance of the announcement of the approval of its expansion of the Metropolitan Colliery. That confidence can be found in the PAC yielding to Peabody assertions of mine closure when setting requirements and recommendations for the approval of the expansion of the Metropolitan Colliery. That confidence can be found in PAC approval recommendations that are ignored by the DoPI. That confidence can be found in Gujarat's statements to the stock exchange. That confidence is reinforced by the DoPI evidently being readily swayed by Gujarat's arguments to accept the abuse of the transitional clause of the EP&A Act that has allowed Longwall 4 to be mined under a DRE approved Subsidence Management Plan, though a continuation of section 74 of the Mining Act of 1992. The arguments that swayed the DoPI are unknown, but it seems likely they would have been centred around an imminent mine closure threatening jobs and State revenue, and the pressing need to accordingly leverage investment in the Preliminary Works project. That confidence would be further reinforced by the remarkable tolerance the DoPI have shown towards Gujarat's compliance failures.

Setting aside the advice and recommendations of expert agencies such as the SCA and OEH aside, themselves Government agencies subject to Government policy and pressure, both undermines their credibility and brings their relevance and value into question. At the same time it erodes the credibility of the DoPI and PAC. It won't escape notice that while a member of the public face fines of $44,000 for walking into the Schedule 1 Special Areas, the SCA has fined Gujarat $1,500 for removing endangered swamp and *Pultenaea aristata* vegetation during Longwall 4 operations.

Many reasons have accumulated for the loss of "*public confidence in the NSW assessment and regulatory system*s".

Conclusion

In gaining Subsidence Management Plan approval to commence Longwall 4 from the Division of Resources and Energy (DRE) with the support of the Department of Planning and Infrastructure (DoPI), Gujarat NRE have abused a transitional provision of the Environmental Planning and Assessment Act to bypass the approval process otherwise required of new mining projects. Following that precedent, Gujarat now seek to abuse section 75W of the discredited and repealed Part 3A legislation to further incrementally establish their expansion project, following the Planning Assessment Commission (PAC) approval of their Preliminary Works Project. The PAC approval set aside the concerns of the Sydney Catchment Authority (SCA), the Office of Environment and Heritage and Wollongong Council. With contortions suggestive of the desperation of a Banana Republic, the DRE, DoPI and PAC evidently value coal royalties more than long term water security and biodiversity protection.

The current proposal has errors, misleading statements and is contains of an amalgam of subsidence management plans and expansion plan material. Gujarat have a record of non-compliance, misleading representations and have been fined by the SCA and the Environmental Protection Authority. Nonetheless, the statistically implausible track record of approvals by the assessment and consent agencies will give Gujarat sound cause for confidence that the current proposal will be approved.

It may be twenty or thirty years before a coal mine is closed and begins to slowly fill with water; until then water will be lost from aquifers, streams and swamps. When the mine does fill many years later, aquifer cross-contamination and leaching from fracture zones will have degraded near surface groundwaters and surface waters. No rational person free of vested interest could conclude other than that coal mining contradicts the intent of the Special Areas and violates the provisions of the Environmental Planning and Assessment Act. No rational person would value coal more than water and biodiversity.

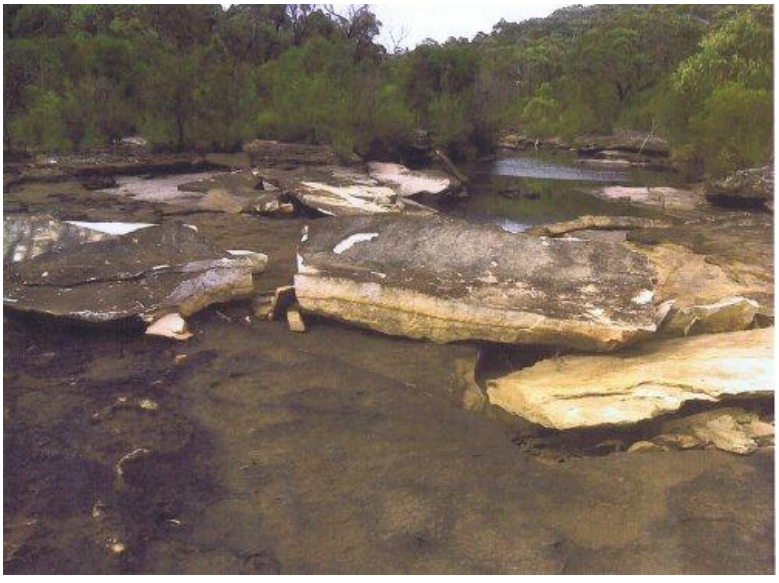

Figure 9. Large bed rock fragments displaced following subsidence at the Waratah Rivulet.

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