Submissions on Environmental Assessment Report – Batch 1

March 2013

CONTACT ID	SUBMITTER	POSITION	TEXT	ATTACHMENT	POSTCODE
2795	Name Witheld	Comment	See attached submission	Yes - Attch A	2500
16809	Scott Turnbull	Object	I am a resident very close to the NRE No. 1 Colliery, and I have concerns regarding the proposed expansion to the facility. Firstly, I will describe myself and my relation to this matter. I am a radiation therapist, currently employed at Wollongong Hospital, and have been working there for the past seven years. I moved to the area from Sydney when I commenced my employment at Wollongong Hospital, and have lived around the Woonona/Bellambi area for the whole of that time. In 2009, I purchased my current property, which is situated at the end of Bellambi Lane. As a resident living close to the mine, I have always had concerns about the impact that the mine is having upon the residents of the surrounding suburbs. I am constantly having to remove black dust from around my house, which I am sure can be largely attributed to not only the mine itself, but also the transportation of coal down Bellambi Lane, on its way to Port Kembla. The effect that this dust can have on people's health has been widely published in peer-reviewed journals, ranging from respiratory problems to cancer. Since cancer care is my primary line of work, I am concerned at the risk that increased coal mine dust has been linked to increased rates of gastric cancer (please see attached file). With an increase in production proposed by this expansion, I can only see that there will be a larger amount of coal stored at the mine, and a greater volume transported along Bellambi Lane, which will lead to an increase in coal mine dust levels and an increase in health problems for residents of the surrounding suburbs. Besides the obvious compassionate grounds that this issue brings with it, there are also the long-term economic problems associated with health issues, with a larger drain on public health and a reduction in productivity by affected individuals. I am also concerned about the potential environmental impacts that such an expansion could have on the local area. In particular are the potential for mine subsidence that can be associated with underground coal mining, and that the expansion will take the mine closer to the Sydney	Yes - Attch B	2518
10726	Kaye Osborn	Object	Submission & 1 Appendix attached.	Yes - Attch C	2518
10726	Kaye Osborn	Object	Submission & 1 Appendix attached.	Yes - Attch C	2518
2778	Philip Laird	Object	Please see the attached 10 page submission.	Yes - Attch D	2522
17114	Name Witheld	Object	The proposal is not acceptable and requires far more work before any serious consideration is warranted	Yes - Attch E	2517
16303	Name Witheld	Object	09_0013. Some of the reasons for my objection are: *Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. *The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. *Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal. *The Russell Vale Colliery is the closest to residential areas of any in the Illawarra. This causes significant public health impacts. New coal storage stockpiles are proposed, with options varying from 315,000 to 840,000 tonnes. These proposed stockpiles would be up to 42m high (or the height of an 11 storey building) and would be located 220m from residences, 375m from a school and 500m from a pre-school. This is an unacceptable development for such a heavily populated area. Moreover, the only exhaust fan from the Wongawilli seam blows pollutants over West Corrimal. *There is increasing awareness and concern about the health impacts of coal dust. The	No	2525
10654	Peter Turner	Object	See Attached.	Yes - Attch F	2508
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5349	Murray Scott	Object	Submission is in separate file.	Yes - Attch G	2233
10718	Helen Wilson	Object	Please find the NPA Illawarra Branch submission attached. We have some objections to the EA.	Yes - Attch H	2516
16413	Alok Gupta	Support	I am in favour of this project	No	2526
15889	Bill Dowson	Support	Like many people in this city, I wear many hats. I am an employer, a father, a volunteer and I like to think, a contributing member of this society. Like all contributors, I am saddened by the things that are taken away from us. Things like reasonable and equitable Government funding, manufacturing industries, jobs and job prospects for our young people. These losses to our community are continuing with the news of even further local job losses in today's media. It is therefore very heartening to hear that Gujarat NRE are confident enough in our community that they want to invest in their current enterprises and create positions for our local workforce. They are to be applauded in their ability and commitment to keep an existing mine going whilst others are winding down. I wholly support the plans of Gujarat NRE	No	2500
16437	Chandrashekhar Talekar	Support	I support Gujarat NRE to expand its operations. It is doing a great service to the community.	No	4122

17066	Name Witheld	Support	I support the continuation of mining at nre Russell vale site, it provides employment and a lot of great opportunities through sponsorship etc for our local community and sporting associations throughout the region.	No	2518
12918	Name Witheld	Object	Objections to Proposal MP 09_0013 I write to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013. Some of the reasons for my objection are: *Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. *The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. *Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal. *The Russell Vale Colliery is the closest to residential areas of any in the Illawarra. This causes significant public health impacts. New coal storage stockpiles are proposed, with options varying from 315,000 to 840,000 tonnes. These proposed stockpiles would be up to 42m high (or the height of an 11 storey building) and would be located 220m from residences, 375m from a school and 500m from a pre-school. This is an unacceptable development for such a heavily populated area. Moreover, the only exhaust fan from the Wongawilli seam blows pollutants over West Corrimal. *There is increasing awareness and concern about the health impacts of coal dust. The proponent's studies only measure particulates down to 10 microns; the Department of Planning	No	2516
16423	Das Balgi	Support	Gujarat NRE Coking Coal Ltd. seeks approval for the consolidation of its existing operations, continuation of operations and an upgrade of associated surface facilities at its NRE No. 1 Colliery. I whole heartedly support Gujarat NRE in its endeavour to strengthen and expand its operations in the Illawarra, thus ensuring job security and community development in the region for an extended period of time. Gujarat NRE Coking Coal Ltd. is one of the largest employers in the Illawarra region, with over 600 employees and their families. Community Development is at the heart of their business plan. Thus, since the very beginning they have maintained a strong focus in strengthening the bonds with the local community, thereby reassuring a very strong part in scripting the on-going success and development of the region.	No	2500
7751	David Burgess	Object	TEC intends to lodge a full submission on the NRE Underground Expansion Project but requires a small extension of time. Our full submission will be lodged by Wednesday, April 10.	No	1240
15960	Name Witheld	Support	Nre is an organisation that brings more to our community than simply mining coal. They support our community by providing employment, helping local sporting such as the wollongong, which would not be here today if it was not supported by NRE. It is time for Wollongong to move ahead and expand for the greàter good, rather than trying to hold our community back.	No	2525

			Expansion Project MP 09_0013, on the grounds that it will have unacceptable impacts on the environment and local community. Some of the reasons for my objection are: * Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. * The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. * Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal.		
4268	Name Witheld	Object		No	2519
17127	Name Witheld	Object	I object to the increase in air, noise and coal pollution in a populated residential area , the impact on the environment, risk to the water supply, health risks. There will also be a negative impact on property values.	No	3450
16808	Name Witheld	Object	I am concerned about a variety of aspects of the expansion. 1. Proximity to water supply and potential damage to watercourse and catchment. The inconclusive findings of the cause of the draining of thirlmere lakes being probably related to mine works that happened years earlier and or current operations are not particularly useful. Those workings being 5 km away from the lakes should alert the responsible approving body that there is a greater need for caution when considering this huge operation. the water security of the catchment could already be damaged with serious implications for the community and the environment. 2. Stockpile The scale of the proposed stockpile is vast. In the storm event of 1998 which saw 750mm of rain delivered locally. This caused significant amounts of coal wash material to leave the current site and block the highway. It filled and raised the creek bed causing increased frequency in flood events for land holders downstream to the present day. The safeguarding against similar events to stabilise a stockpile of such significant dimensions is problematic and implausible. The escarpment is prone to land slip with the twin causes of vibration and water being present. The dust emanating from the site now reduces the amenity of my home already . 3, transport Bellambi lane is built over a traditional watercourse line it currently is regularly repaired due to the load on the road . This increase in load is a major imposition on the local infrastructure with little benefit to the community. I appeal for a more measured and considered development. To safe guard the communities amenity,security,safety and ability to co exist with the mine. Thank you	No	2518
15888	Name Witheld	Support	I would like to support the expansion plans of Gujarat NRE. This company has been a good corporate citizen in the Illawarra region since they entered the local mining scene saving the local basketball team and sponsoring many other charity and community events. More importantly the proposed expansion will mean the creation of many local jobs in a city which is already suffering after the massive downsizing of the Port Kembla Steel Works (BlueScope Steel). The flow on effects will be significant to the local economy. The proposal is, I believe, low impact and worthy of the community's full support.	No	2500
16926	Perla Fefey	Object	Let's use the sun to provide our energy and let the land just be as it is to sustain us, Keep Australia, keep our land sacred, free from rape.	No	2502
16385	Sarah Cardenzana	Object	This is 2013 and we are still looking to expand coal mines. There are numerous environmental and health impacts that you probably think can be minimised. However, once an environment is changed it is changed forever. These short term profits are only in the sight of those wearing business suits, drinking coffee and sitting on their *** in the office. Get out into the real world and look at the effects of what is going on. I'd say I've got another 60 years on this earth and i don't want to live in ****.	No	2211

16777	Name Witheld	Object	Major Projects Assessment Department of Planning GPO Box 39 Sydney NSW 2001 To Whom It May Concern, Objections to Proposal MP 09_0013 I write to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013. Some of the reasons for my objection are: *Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. *The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. *Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal.	No	2515
15865	Name Witheld	Support	I support the expansion plans of Gujarat NRE as this company has shown their commitment to the broader region by their support of many community organisations, includung the Wollongong Hawks. Without this vital financial support a community owned club would no longer exist, along with the many community and school programs that the Hawks run on bullying and providing positive role models for our children. Their expansion also ensures vital jobs are not lost to this region. With the steel industry in decline, we need to support coal mining operations in the Illawarra.	No	2500
11103	Natasha Watson	Object	Its insanity that the NSW government appears to bending over backwards to help Gujarat NRE destroy our Illawarra escarpment and drinking water catchment. Sponsorship of a basket team can never restore upland swamps, 'unpollute' our waterways or resurrect extinct native wildlife. The resources, whether coal or water, belong to everyone, not just a greedy foreign owned company thats happy to plunder all our assets for profit and leave us with the pollution, noise and crumbling chasms in the escarpment	No	2508
17120	Renaee Churches	Object	I saw the 4 corners recent report on Coal Seam Gas and am alarmed that people in NSW are being pushed off their land to make way for mining that no one wants. Please consult with the public first and prioritize clean water and food production over mining.	No	3067
16409	Name Witheld	Object	I object to he any expansion of the mine at Russell vale because of the effects of dust, noise, traffic movements on the environment in this residential area. When Gujarat first acquired the mine it was allowed to do small scale mining and drive access roads to the mining area west of #4 shaft. the conditions included no coal treatment and no stockpile would ever be needed on the Russell vale site. The mine claimed that all longwall coal would exit via the cordeaux mine owned by bhpb. My home is already suffering from grimy coal dust from the mine and noise. I object to the granting of any permission to mine that involves coal handling and stockpiling at Russel vale	No	2518

			Major Projects Assessment Department of Planning GPO Box 39 Sydney NSW 2001 To Whom It May Concern, Objections to Proposal MP 09_0013 I write to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013. Some of the reasons for my objection are: · Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. · The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. · Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the		
17065	Name Witheld	Object	precautionary principle should be the basis of assessment - and rejection - of this proposal.	No	2570
			Corrimal, which are in close proximity to the Gujarat NRE mine? Since moving to Corrimal we have both noticed the dust and noise pollution from traffic, coal trucks and exhaust fans from the mine and how this has contributed to respiratory problems, we now have to take antihistamines daily. The dirt and grime from the exhaust fans I have had to employ a cleaner as the daily levels of dust and dirt are extreme. We have also had to resort to keeping all doors and windows closed which is extremely uncomfortable during the warm to hot months of the year. The exhaust fan noise from the mine at night has been so extreme that we have contacted the NSW EPA on several occasions to report the level of noise. With the proposed expansion we are extremely worried about the increase in exhaust durt and noise, truck movement noise and pollution, as well as the coal stockpile. My partner and I have major concerns about the mine's expansion which will only increase, dust and noise pollution and ultimately our quality of life. We are also concerned about the environment and struggle to see how a mine should be operational so close to a residential area. We love the neighbourhood we live in and would find the increased noise and pollution untenable.		
16846	Name Witheld	Object		No	2518
16062	Name Witheld	Support	I support the submission that will increase the viability of the current operation and also creat much needed employment in the Illawarra.	No	2529
15985	Name Witheld	Support	This project by Gujarat NEW Minerals Ltd is good for the Illawarra and Australia. It should be approved for the following reasons: 1. It provides jobs for people at the mine, at local support facilities, in transport, in schools and in government. 2. Mining has been carried out in the Illawarra almost since white settlement without major environmental impact and under todays strict requirements will be less intrusive than ever. 3.It is supplying energy to an energy poor & socially poor country.	No	2530
16918	Name Witheld	Object	I am writing to strongly object to the proposed massive expansion of Gujarat NRE's Russell Vale Colliery in the Illawarra. The objection is based primarily on the grounds of the very real threat to the integrity of the Sydney Water Catchment Special area. This is an absolutely critical area for the well being of residents of the greater Sydney/Illawarra area with respect to a quality water supply, as well as to endangered ecological communities and habitats for threatened species. The major expansion of the undergound mining could have a number of adverse impacts including surface cracking, and negative effects on water courses and swamps. The unpredictability of the surface effects of such mining combined with the manifestly high importance of the area really should mean that approval is not given to the expansion proposal. In addition, I believe it is vital that proposals regarding renewable energy initiatives should be the ones given priority over those involving fossil fuel energy sources with their major negative environmental impacts. I would thus urge that this Gujarat NRE proposal not be approved.	No	2519

16161	Linda Gill	Object	We have reached a point where the contrubution of more carbon is completely unacceptable. This is an industry that is now putting our life support systems at risk, and those who approve continued access to coal are aiding and abetting in this threat and will be held to account. The development of renewable energy is the only development that should be occuring.	No	2423
2826	Caroline Graham	Object	The concerns of our Rivers SOS Alliance are specifically about river systems and water resources, and in all too many cases since 2005 our focus has been on the impacts of coal mining (and now potentially CSG extraction) on the Special Areas of Sydney's drinking water catchments. If we as a society are unable to protect relatively small areas of pristine bushland, as mandated in 1998, which are vital for the preservation of water quality and quantity, then there is truly something rotten in the State of NSW. (As we are learning bit by bit). We are tired of writing submissions, unheeded and probably unread, on the ongoing destruction of the Special Areas - from the damage to the Upper Cataract, the Upper Canal, the Waratah Rivulet, the dessicated upland swamps and cracked creeks at Dendrobium and now this shocking plan with its multi-seam mining and the longwalls of unprecedented width. Rivers SOS worked to raise thousands of dollars to take the Metropolitan expansion to the Land and Environment Court in 2010, vs. Minister Keneally and Peabody. Needless to remind you that we lost. The destruction continues exactly as predicted. Now we feel that it is up to the experts in the Department of Planning to take a stand, since politicians are obviously too fearful of mining power and/or too corrupt to protect our interests. Hoping for a whistleblower or a public servant with conscience to do the right thing at last, expose the corruption in the approvals process and defend our Special Areas as mandated.	No	2569
11032	Chris Williams	Object	for my objection are: * Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. * The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. * Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal. * The Russell Vale Colliery is the closest to residential areas of any in the Illawarra. This causes significant public health impacts. New coal storage stockpiles are proposed, with options varying from 315,000 to 840,000 tonnes. These proposed stockpiles would be up to 42m high (or the height of an 11 storey building) and would be located 220m from residences, 375m from a school and 500m from a pre-school. This is an unacceptable development for such a heavily populated area. Moreover, the only exhaust fan from the Wongawilli seam blows pollutants over West Corrimal. * There is increasing awareness and concern about the health impacts of coal dust. The	No	2515

16880	Darren Tholen	Support	To whom it may concern, Granted I live on the other side of the country, I work within this industry and appreciate the positive impact of projects such as these on communities. Many of my considerations are replicated in ERM's Environmental Assessment parts A-D included in the exhibition and I draw particular attention to page 57 of Part A as well as pages 503 and 504 of part D which I believe would speak volumes to government. I have worked in Tasmania and seen the effects of projects such as these being refused or restricted to the point of them not being viable. Unemployment and lack of opportunity is seeing an impact on socio-economic conditions of the community. The prosperities of community is dampened and those motivated enough leave seeing the communities enter a further state of decay. The underground extension project will provide more than 53 additional jobs but a security for the over 300 employees there for a further 18 years. Gujarat NRE's contribution to community directly or indirectly insures the health of education and sporting institutions in nearby towns. Should Gujarat NRE not be supported this may see the demise of organizations such as the Wollongong Hawks which give pride to the region as well as national coverage to the region and ultimately tourism, so in effect their presence has a knock on effect to so many aspects and even to unrelated industries. I encourage you to look favorably on the underground expansion as not only will it provide revenue for the state it may have greater ramifications on the local community if it doesn't go ahead, than may be initially realized.	No	6024
16446	Name Witheld	Object	This submission is to acknowledge that Gunjurat NRE's exhibition reflect serious environmental impacts on the surrounding urban and natural environment. 1) The local schools in the area are subject to excessive noise and air pollution from the excess of proposed stockpiles causing added respiratory diseases such as Asthma, Hay fever and Dust allergies 2) As the surrounding demographics is housed to many elderly people, it would be fair to state that would be evidence to suggest that coal stockpiles will also increase the risk of illness and respiratory issues to these people. 3) The roads, including Bellambi Lane will not cope with the excess transport of coal trucks entering and exiting this intersection. NRE needs to look at developing a more comprehensive transport strategy that lessens the impact on the local area and roads network. 4) The increased transport movements to and from Princes Hwy Russell Vale would increase the risk of pedestrian injury or even death as there is a pre-school just north of the entrance. Additionally there are public bus stops nearby and 40kph School Zones just South of the proposed mine activity, not to mention transportation along the roads to and from Port Kembla Coal Terminal. 5) Security of loads is a major issue, I have noticed time and time again, small- to-medium sized rocks falling out of the trucks trailers due to trucks being overloaded causing damage to vehicles (including but not limited to tyre and rim damage, cracked windscreens, etc) 6) Environmental issues within the Escarpment is a huge concern as the birdlife consists of native birds including Black Cockatoos and Kookaburra's as well as natural flora. NRE has NOT looked after the escarpment to date, as I regularly run up to Brokers Nose, I have noticed the deterioration of tracks thanks to their vehicles driving erratically on these fire trails and the contamination of the water overflow on one of the ridges suggests that their current export license is currently borderline dangerous. 7) Evening noise from the mine is louder than what has been promised by these people - NOT ACCEPTABLE	No	2518
16414	Name Witheld	Support	I fully support the expansion of undergroud project by Gujarat NRE. This will create new job opportunities and also improve economic stability in the region.	No	2529
17101	Name Witheld	Object	I live on the Liverpool Plains in New South Wales. I know what it is like to be fighting coal companies and governments in the protection and longevity of the area that is precious to us. I certainly do not want to see my home, the Liverpool Plains, scarred by coal mines, and I can sympathise with the residents of the Illawarra. Coal is not more important than protecting people's health, their way of life, and their livelihoods. It is not more important than protecting the water resources that we are so reliant on. It is certainly not more important than the flora and fauna that are native to this country, which are continually under threat. And it is not more important than protecting the integrity of the landscape that this country has been blessed with. The people of Illawarra do not want this project to expand. I am sure that they did not want it there in the first place. This is their home and I stand beside them in their protest against the expansion of this mine. Coal is dirty and we as a nation are banding together in want of a cleaner, greener more sustainable future. Coal has no place in this environmentally friendly future and it should not be allowed to continue as the dominate industry in this country. It is time to say "NO" to coal mining expansion. It is time to listen to what the people want, and the people want a coal-free future.	No	2343

16325	Lynda Fletcher	Object	Major Projects Assessment Department of Planning GPO Box 39 Sydney NSW 2001 To Whom It May Concern, Objections to Proposal MP 09_0013 I write to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013. Some of the reasons for my objection are: Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal. The Russell Vale Colliery is the closest to residential areas of any in the Illawarra. This causes significant public health impacts. New coal storage stockpiles are proposed, with options varying from 315,000 to 840,000 tonnes. These proposed stockpiles would be up to 42m high	No	2518
17075	Name Witheld	Support	Dear Mr Preshaw, This submission is made in support of Gujarat NRE and its plans to continue operations at the NRE No. 1 Colliery, to lift production to 3 million tonnes a year and to upgrade the mine. Gujarat NRE operates two mines in the Wollongong area, and these were going to be closed before NRE purchased them. Both mines are now operating, employing up to 600 people and providing work in the local area. The future of these mines relies upon them being profitable and this involves efficiencies in operations and production. Longwall mining is the safest and most productive for all underground coal mining methods. The plans to lift production and upgrade the equipment mean that the mine will have a future and continue to provide employment. I work in the mines and live in the Wollongong region. My family is dependent upon my job and the mine continuing to be profitable and productive. A number of special interest groups who live near the mine have raised objections to the proposals and the continued operation of the mine. They do not represent the true feelings of the local community. The mine was there first. There has been a mine operating on this site for the last 125 years. It is part of the local community. Without the support of the mine many local community groups would find it difficult to survive. This includes the Wollongong Hawks. local football clubs, local surf clubs the "Light and Hope Foundation" as well as Cricket NSW; all through NRE's support Full time employment is not easy to find in the Wollongong area and many of the local mines have closed. This means that without mines like NRE No.1, people like me will be looking for new jobs, and forced to travel long distances, disrupting their families and the community.	No	2500

16848	Name Witheld	Object	The following opinions and objections are put forward from my perspective as a geologist, having worked in the Southern Coalfields for many years. I wish to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013. My reasons for this objection are as follows: The proposed Longwall Mining places at risk creeks feeding into Cataract Reservoir and the reservoir itself. As there is insufficient detailed hydrological and geological data available in the vicinity of the western proposed longwalls, I refer to a hydrological and geological study conducted by Pells Consulting in 2011 around Thirlmere Lakes. The coal seam depths, stratigraphy and geology of that area are very similar to those of the Gujarat Proposed Mining area. It can be expected therefore that the effects of longwall mining, on surface features in each area, would be comparable. The Pells' studies strongly suggest that Longwall Mining in Thirlmere Lakes area have caused significant falls of the water level in Lake Nerregorang. In addition, these same studies, from the same area, indicate that some of the private water bores, show a drop in water levels in the bores. The drop in water levels in these bores correlate in timing and location with the extraction of Longwall panels at Tahmoor Colliery. There is also evidence that some of these anomalous levels are related to geological structures (faults and dykes) encountered in the mine workings. Extrapolating from the Thirlmere Lakes data to the geologically similar Western Longwall area in Proposal MP 09_0013, it may be concluded that there is a real risk of damage to the creeks and reservoir that could lead to subsequent loss of water storage. It is also noted that the geological structure of the coal seams in the western area is not well known, and is largely projected from widely separated boreholes. There is therefore a strong likelihood of encountering unpredicted faults and dykes. Any faults or dykes may not be vertical, and can provide potential seepage channels for surface water. As noted by Pells, such	No	2519
15952	Sam Page	Support	I would like to support the development proposal on the grounds that the economic benefits of having NRE continuing their development of mines in the Illawarra outweighs the issues that could be raised by the vocal minority.	No	2518
15947	Jason Gow	Support	I support this because of NRE Gugarat support our community	No	2529
16656	Jeanette Southam	Object	My concerns regard the stockpile of 315 -840,000 ton of coal, the dust and noise polution that will result if this is approved. I am also concerned about the environmental impact to the water catchment special area. * Having seen the devistation caused in August 98 storms, where coal washed down Bellambi Lane and into homes it would be even more damaging should such a stockpile of coal accumulate. The memory of those poor souls in Bellambi Lane shovelling coal from their homes will remain with me forever. * Our home already gets more dust in this area than other areas we've lived. We are not currently affected by noise from mining, and would not want to be. * The environmental impact by expansion under the Sydney Water Catchment Special Area threatens contamination of our water, threatening endangered ecology and specy habitats. So, NRE intend causing discomfort and threatening the health of residents, damaging the environment beyond repair, then when they have no more coal, leaving to another area. There is no benefit for the residents of our community. NRE is a foreign company exporting our resources to their shores.	No	2518
16990	Name Witheld	Object	I think the expansion of the mine will detract from the Illawarra, Wollongong or Northern suburbs to the health of its people or its' already crumbling infrastructure. We the people derive little benefit from such things. Who asked 'us' about tendering off our port harbour? Who gives a 'rats' arse' about expansion of a coal mine whose close proximity to that of schools and homes. To NRE, they already know that the mine was a limited business prospect to begin with. Bad luck for them. They took a chance roll of the dice, if we were silly enough to grant them an expansion the business would wind up some other point down the track. This way saying no to expansion of the mine stops all of the associated problems with environmental degradation and seismic variations of the terrain causing building, road and general subsidence. Which primarily we as tax payers and rate payers are worst case footing the bill for such occurrences. NRE when they move on aren't going to 'pony up' any remedial funds for the Illawarra. They are only here to make a profit, they have no social conscience to speak of, therefore can't be trusted to operate at that level (which is a higher level than what the rule of law allows or make the business compliant to that law).	No	2518
15951	Mario Trikkis	Support	Being a small business owner in Wollongong we need Gujarat NEW Minerals Ltd to expand and keep people in this town employed which will help money flow into the local businesses.	No	2500

2850	David Winterbottom	Object	Neighbourhood Forum 5 Wollongong's Heartland Coniston, Figtree, Gwynneville, Keiraville, Mangerton, Mount Keira, Mount St Thomas, North Wollongong, West Wollongong, Wollongong City. Neighbourhood Forum 5 has been set up by Wollongong City Council to reflect the views of residents and advise it on matters of local concern. Bellambi Coal Mine Expansion Gujarat NRE Coking Coal Ltd propose a major expansion of coal mining activities out of their Bellambi portal including, inter alia, approval for a big increase of 3 million tonnes of coal per annum in road haulage and a massive stockpile . The proposal is a nightmare for neighbours; a coal stockpile as high as a 14 storey building is proposed and there will be one coal truck leaving the mine every 80 seconds in peak times. However, on a much larger scale the proposed expansion of longwall mining has serious implications for the Sydney Water Catchment Special Area. The expansion will undermine and threaten a number of rivers, creeks and swamps that flow into the Cataract Reservoir. They will even mine under the shores of the Reservoir itself. Furthermore, the Gujarat NRE Major Expansion at Russell Vale Colliery will mean a large, new greenhouse gas source right here in Wollongong. The mine will emit 95,000 tonnes per annum of methane, a greenhouse	No	2500
10381	Name Witheld	Object	I am totally against any futher expansion of operations at the russell vale mine as the increase in coal dust will drastically impact on the health of near by residents and also on those living either side of memorial drive due to the increase in truck movements transporting the coal to port Kembla . Also longwall mining under the water catchment is far too risky .	No	2518
11012	Name Witheld	Object	I object to the application. It completely contradicts Australia's national initiatives to reduce our dependance on burning coal and reducing climate change. The Bellambi expansion is likely to release about 95,000 tonnes pa of methane - far more than a usual mine, and about 2% of the methane produced by the entire Queensland coal seam gas industry. Thats adding about 0.43 per cent to Australia's TOTAL greenhouse emissions! How does this fit with the national initiatives? In addition, there is likely to be an increase of our fugitive (leaked gas) emissions by six per cent - from a mine producing about one per cent of Australia's coal. There is no commitment in the application to ensure these fugitive emmisions are harnessed. Also, whay are tax payers subject to funding expected road damage from increased trucking? How is coal dust going to be managed from the giant stockpile when it gets windy? Why should the local community be breathing in more coal dust than it already has to? What are the real health impacts for the community? The expansion will undermine and threaten a number of rivers, creeks and swamps that flow into the Cataract Reservoir, & even mine under the edges of the Reservoir itself. This fails to be a sensible risk-taking excercise. Please explain how this risk to our Water supply is justified? Regards.	No	2518

16838	Name Witheld	Object	Major Projects Assessment Department of Planning GPO Box 39 Sydney NSW 2001 To Whom It May Concern, Objections to Proposal MP 09_0013 I write to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013. Some of the reasons for my objection are: * Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. * The proposal includes 390 metre Longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. * Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal. * The Russell Vale Colliery is the closest to residential areas of any in the Illawarra. This causes significant public health impacts. New coal storage stockpiles are proposed, with options varying from 315,000 to 840,000 tonnes. These proposed stockpiles would be up to 42m high (or the height of a 14 storey building) and would be located 220m from residences, 375m from a school and 500m from a pre-school. This is an unacceptable development for such a heavily	No	2518
15882	Name Witheld	Support	I support the expansion plans of Gujarat NRE as this company has shown their commitment to the broader region by their support of many community organisations, including the Wollongong Hawks. Without this vital financial support a community owned club would no longer exist, along with the many community and school programs that the Hawks run on bullying and providing positive role models for our children. Their expansion also ensures vital jobs are not lost to this region. With the steel industry in decline, we need to support coal mining operations in the Illawarra	No	2500
17102	Johanna Evans	Object	This development is unsuitable to the area, proposes numerous health risks and threatens the quality of water in the area.	No	2474
17061	Kate Mason	Object	MP 09_0013. Some of the reasons for my objection are: This type of mining threatens the live and people animals and the ecosystem in the area and surrounding areas. You can not justify the loss of life that will occur! * Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. * The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal. * The Russell Vale Colliery is the closest to residential areas of any in the Illawarra. This causes significant public health impacts. New coal storage stockpiles are proposed, with options varying from 315,000 to 840,000 tonnes. These proposed stockpiles would be up to 42m high (or the height of an 11 storey building) and would be located 220m from residences, 375m from a school and 500m from a pre-school. This is an unacceptable development for such a heavily populated area. Moreover, the only exhaust fan from the Wongawilli seam blows pollutants	No	2047
17128	Name Witheld	Object	While I do not live in the area in question, I stand in support of the residents of the Illawarra in opposing the degradation of their environment.	No	3182

			I would like to register my opposition to the proposed underground expansion project of Gujarat NRE Coking Coal Ltd. in the Northern Illawarra. I have serious concerns regarding the direct risks and impacts on the health and wellbeing that this expansion would exert on surrounding communities. This includes the large increase in truck movements with associated air pollution and safety risks, as well as potential risks associated with longwall mining being taken in areas important to our water catchment. I am also concerned about the direct contributions that these mining activities will have on greenhouse gases in the atmosphere and the now very well understood consequences that this is having, and will increasing have, on humanity. These changes will make all of our existing water resources even more vital in the future and therefore too important to take risks with now. Both the immediate and the long term health, social and economic costs on citizens locally, regionally, statewide, nationally and globally that coal mining expansion through the Gujarat proposal far outweigh the benefits that would accrue to this company and the community. I intend to provide additional documentation to support the statements in this submission in the near future.		
11134	Melissa Haswell	Object	Thank you for the opportunity to provide this information for your consideration.	No	2508
			Major Projects Assessment Department of Planning GPO Box 39 Sydney NSW 2001 To Whom It May Concern, Objections to Proposal MP 09_0013 I write to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013. Some of the reasons for my objection are: Longwall coal mining is a listed Key Threatening Process that damages the surface and cracks water courses and swamps, causing water contamination and loss. The proposed mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. The watercourses and swamps to be undermined are an integral part of the Sydney Water Catchment system that supplies Cataract dam. The catchment has already been badly damaged by mining; the limited royalties and jobs do not justify further damage. The proposal includes 390 metre longwalls - the widest proposed to date for the Southern Coalfields. Longwalls of this width will result in the loss of surface water. Single seam subsidence impacts are difficult to predict; the uncertainty is compounded by triple seam mining and this poses unacceptable risks to the catchment. Application of the precautionary principle should be the basis of assessment - and rejection - of this proposal. The Russell Vale Colliery is the closest to residential areas of any in the Illawarra. This causes significant public health impacts. New coal storage stockpiles are proposed, with options varying from 315,000 to 840,000 tonnes. These proposed stockpiles would be up to 42m high (or the height of a 14 storey building) and would be located 220m from residences, 375m from		
16842	Name Witheld	Object	a school and 500m from a pre-school. This is an unacceptable development for such a heavily	No	2203
			We have been Northern Suburbs residents for over 50 years and have lived in close proximity to the mine for the past 26 years. During that period we have had no significant environmental, or production issues with the mine and its production infrastructure. The operations of Gujarat and levels of noise and dust have been extremely low and within the limits outlined by the EPA, and production guidelines have been adhered to by the company. At no time, have we felt as residents, that the mines operations have been detrimental to our local neighbourhood. In recent times the Gujarat NRG Company has applied for Development Consent on enhanced operations at The Bellambi mine. We have no objections with this application. Gujarat has always kept us informed with regular news letters, and Community Open Days, and we have been in constant communication with their liaisons officer should any relevant matter arise. They are a community minded operation and they are committed to the area as being a responsible resource manager. The Company has invested heavily in its operations to ensure best practice and this investment has had a positive flow on effect in the community.		
17089	Name Witheld	Support		No	2500
17027	Lisa Metcalfe	Object	see attached PDF	Yes - Attch I	2515
16813	Scott Wilson	Object	Please refer to the attachment	Yes - Attch J	2517
10654	Peter Turner	Object	See Attached.	Yes - Attch F	2508
2795	Name Witheld	Comment	See attached submission	Yes - Attch A	2500
17118	Name Witheld	Object	tHE PROPOSAL FAILS ENVIRONMENTAL TESTS AT ALL LEVELS FROM THE IMMEDIATE NEIGHBOURHOOD TO GLOBAL WARMING	Yes - Attch K	2517
16938	Ann Young	Object	as attached. Thank you for the opportunity to comment.	Yes - Attch L	2515
10794	Martin Schulz	Object	See attached.	Yes - Attch M	2518

Attch A

WOLLONGONG TRANSPORT COALITION

Submission – 09_0013, Underground Expansion Project NRE No.1 Mine

28 March 2013

In 1993, the Wollongong Transport Coalition (WTC) was formed by local people with the aim of responding to the impact of the expansion of the Port Kembla Coal Terminal (PKCT). WTC was reactivated in 2008 in the light of a PKCT proposal for more coal trucks with night operations before the NSW Department of Planning in 2008-09. Our 2008 Submission appears as Appendix A.

The applicant is seeking, inter alia, approval for NRE No. 1 Mine Russell Vale to expand run-of-mine coal to 3 million tonnes per annum (mtpa). A report by Olsen Environment Consulting for NRE re: Surface facilities and On-site Traffic Preliminary works Part 3A, it states (page 26) that "during the 1980's and 1990's, the Mine was producing up to 3 mtpa of Run-of Mine Coal. Washed coal was transported from the site by 25t capacity coal trucks regularly transporting between 8,000 and 12,000 tpd on a typical day and peaking at 18,000 tpd. This was achieved at a coal truck access rate of typically 35 per hour, ranging up to 55 per hour. During these times an average of approximately 250 truck loads per day (to and from the site) were required to achieve the transport task."

However, at that time, the coal mine (South Bulli) then had a washery, so that the actual transportation of coal would have been less than 3 mtpa. In addition, coal haulage to the Port Kembla Coal Loader was to be capped at two (2) mtpa, and this was to be achieved by the agreed construction of a conveyor from the South Bulli Colliery to rail loading facilities near Bellambi Station. Agreement for this construction was reached in 1979. Strangely enough, this is not mentioned in the application. It is to be hoped that the Director-General's report will put the record straight. In addition, this comment as quoted above fails to recognise that the road haulage of coal at such high levels produced an adverse environmental and social impact. It is not something to be used as a precedent.

Much more attention is needed to be given in the assessment to the cumulative impacts of extra coal trucks from the NRE mine. The 2010 analysis in the Environmental Assessment needs to be updated.

Freight

Wollongong's main roads to Port Kembla have no shortage of coal trucks, now over 5 mtpa to the Coal Terminal and with the prospect of 10 mtpa, plus more coal to the steel works. Plus car carrying trucks since 2008, and now approval in mid 2011 to expand Port Kembla Outer Harbour with more big trucks.

These cumulative impacts increased following two determinations by the Planning and Assessment Commission in December 2011. The first, as noted in the Illawarra Mercury of 2 and 3 December 2011 was to approve an application to lift road haulage of grain to Port Kembla from 200,000 to 500,000 tonnes per annum. The second approval was to BHP Billiton to expand production of their Appin Mine Complex to 10.5 mtpa, and using road haulage for the expanded coal production.

On top of the coal and the grain along with general freight and car imports, there are quarry products (Hanson's Bass Point Quarry and Boral's proposals for more trucks on the roads from Dunmore).

No other city in Australia is subject to this imposition of bulk haulage by road with its increased road crash risk, noise and air pollution, plus road congestion. To add insult to injury, the operations of the heavier trucks are arguably subsidised by low fuel taxation (only about 25.5 cents per litre for diesel used by big trucks after rebates as against the 38.183 cents a litre paid by motorists) and for the road damage big trucks that travel large distances each year, low annual registration charges. As noted by the Henry Tax review, mass distance location charges are long overdue.

In assessment, regard should be paid to the statement on page 4 of the 2006-2031 Illawarra Regional Strategy of the Department of Planning as follows: "*It is important that the Region's transport networks support economic growth and maximise the efficiency of freight transport. In particular, what is required are strategic transport corridors to support development of the port of Port Kembla, increase the proportion of freight transported by rail, efficiently link regional centres and towns, and support public transport*."

At the very least the Department of Planning should adhere to the stated policy of the NSW Government in the late 1970s which was clear and to the point: **All coal from new or expanded mines shall be transported by rail, and road transport of coal shall be subject to tough conditions.**

If the Company wishes to expand its production of NRE No. 1 Mine from 1 mtpa to 3 mtpa, it is suggested that consideration be given to opening a new mine outlet and connection to the long proposed Maldon Dombarton rail link. Or the company should be required to show cause why it should not construct a conveyor from the South Bulli Colliery to rail loading facilities near Bellambi Station (as agreed to by the previous owners of the mine).

Maldon Dombarton link

In 2010, WTC responded to proposals for further expansion of Port Kembla and suggests that no further expansion of this Port should proceed until the NSW government has given a commitment to support the completion of the Maldon Dombarton link.

The Wollongong Transport Coalition further supports a December 2010 Wollongong City Council Neighbourhood Forum 5 resolution strongly supporting construction of the Maldon to Dombarton Rail Link because:

a it would substantially reduce truck numbers on the roads;

b enhance road capacity;

c enhance rail capacity;

d open up new sources of export through Port Kembla; and,

e its potential to allow for passenger train movements.

The Maldon Dombarton project is one third completed already and will free up capacity on the congested Sydney Wollongong railway for more passenger trains.

Port Kembla expansion to date has already put more pressure on the Mt Ousley, Picton and other roads. Plans for further expansion of the Outer Harbour envisage most extra freight on rail, however, as seen by the NSW Roads and Traffic Authority Stage 1 Port Kembla outer harbour traffic volumes (bulk, general and limited containers) in the official June 2010 submissions report; if the predicted rail mode share could not be achieved, there would be likely ***"… unacceptable impacts to road safety and traffic efficiency as well as environmental issues such as amenity, noise and air quality."***

There is also the question of what upgrading of the existing railway will be required if the Maldon Dombarton link is deferred for much longer. The recent upgrading of the Sutherland Cronulla line with nearby signals cost over $400 million.

To build the Waterfall-Thirroul tunnel promised in 1998 was estimated in 2003 to cost well over $1 billion, with less expensive options noted at about $700 million. Again, Maldon Dombarton at some $550 million is a much less costly option, and one has to wonder why the NSW Government has not done more to promote its completion.

WTC notes that the NSW Government is seeking a major M5 East upgrade at a cost of (at least) $4.5 billion to help allow Port Botany to expand. Given the growth of Western Sydney and the relative proximity of Port Kembla to South Western Sydney, it would make much more sense to complete the Maldon Dombarton link and expand Port Kembla.

In conclusion

WTC would request the Planning and Assessment Commission hold hearings into the current application.

WTC requests that the application, if approved, have consent conditions that make it very clear that there will no expansion run-of-mine coal from above 1 mtpa AND that any further applications for increasing production of run of mill coal production above 1 mtpa be accompanied by analysis of the wider benefits and costs opening of a new mine outlet and connection to the long proposed Maldon Dombarton rail link and/or construction of a conveyor from the South Bulli Colliery to rail loading facilities near Bellambi Station (as agreed to by the previous owners of the mine in 1979).

In addition, consent conditions regarding the road haulage of coal should to minimize road safety risks and improve amenity for residents. In addition to any code of driver behaviour, there could well be requirements for coal trucks to be fitted with tachographs.

Irene Tognetti
Spokesperson
Dallas Street
Keiraville NSW 2500.
wollongongtransportcoalition@gmail.com

APPENDIX A Submission – Port Kembla Coal Terminal Project (MP 08_0009) To NSW Department of Planning October 2010

The Wollongong Transport Coalition (WTC) was formed by local people fifteen years ago with the aim of responding to the then Commission of Inquiry to examine the impact of the expansion of the Port Kembla Coal Terminal (PKCT) on the region. WTC has now been reactivated in the light of the current proposal.

We are apprehensive about the length of time that the proposal was on exhibition. One month, of which half was during school holidays, is not sufficient for a community to respond to a proposal that will have such a major impact on the region. Requests for an extension of the closing date through the Member for Keira, the Hon David Campbell, had not been granted to date.

Only in Wollongong would it be considered to double the coal trucks on the road, to abolish an existing curfew and to have coal trucks running twenty four hours a day, seven days a week Although it is not immediately clear in the impressive and large proposal of PKCT, it is apparent that the aim is to increase road haulage of coal from 5 tonnes to a maximum of 10 million tonnes per annum (mtpa). This would mean a doubling of the coal trucks on the road.

There are several significant concerns that we would like to raise in this regard:

Current situation. The present level of 5 mt pa far exceeds the original limit of 2 mtpa in the consent granted in 1979 by Wollongong City Council. This limit was lifted in 1982 when the State Environmental Planning Policy (SEPP No.7) was introduced. By way of compensation for residents, SEPP 7 limited road haulage of coal to 11 hours per day six days per week (except on Sundays and Public Holidays) and required coal from Tahmoor and Western Mines to be received at PKCT by rail. In the new proposal no mention is made of this.

Constant noise. The coal transport corridor traverses large residential areas. While during the day the noise of trucks is part of overall traffic noise, at night the noise is heard at longer distances thereby preventing many people from having a proper night rest.

Safety. More coal trucks in addition to the soon to be operating car carrying trucks will have implications for the safety of other road users. Road commuters between Wollongong, the Hume Highway (via Picton) and Sydney will face an increased risk of safety on the daily trip to and from work. How will the roads cope in holidays and long weekends? How will an increase in trucks on the road impact on tourism?

Environment: Dust and exhaust fumes will increase, this will have implications on the health of people and increase greenhouse gases. The Federal Government is taking climate change seriously and we would expect the NSW Government to do so as well.

Infrastructure. Large sums of money have been invested in a feasibility study to complete the Maldon-Dombarton rail link. It would seem sensible to finish the rail link and utilize it for transport to and from Port Kembla Harbour. Rail only uses one third of the energy that trucks use and are 20 times safer than road in the movement of freight.

PKCT has had the opportunity to plan the above proposal for a lengthy period of time. It contracted engineers and advisers to collect data and compiled a report with the aim of convincing decision makers of the merit. However the community has had only one month to respond and has had no time to lobby respective government departments for sampling and data collection, let alone inform residents. Wollongong City Council has been placed in administration and citizens are not adequately represented. It is feared that in the rush to create more employment, essential social and long term economic implications are overlooked.

We urge the Minister for Planning to hold a Commission of Inquiry with a broad term of reference to ensure that all relevant issues are properly examined.

Attch B

Gastric Cancer and Coal Mine Dust Exposure

A Case–Control Study

RICHARD G. AMES, PHD, MPH*

Based on evidence that coal miners have elevated gastric cancer mortality rates, a case–control study was developed to assess the gastric cancer risk of coal mine dust exposure. Forty-six cases of US white male gastric cancer deaths from NIOSH coal miner cohorts were individually matched by age to controls. From these data we show that a statistically elevated gastric cancer risk exists for miners who have prolonged exposure to coal mine dust and prolonged exposure to cigarette smoke. Coal workers' pneumoconiosis, a disease defined in terms of coal dust deposition in the lungs, was not found to be a gastric cancer risk.

Cancer **52:1346–1350, 1983.**

An accumulating body of evidence suggests that US coal miners have an elevated risk of gastric cancer mortality. Elevated gastric cancer mortality rates have been reported for US coal miners by Enterline,[1,2] Matolo *et al.*,[3] Klauber and Lyon,[4] and Rockette.[5,6] Stomach cancer excesses did not, however, show up among miners in the Third National Cancer Survey.[7] Excess gastric cancer rates have also been reported for coal miners in England by Turner,[8] in England and Wales by Stocks,[9] and by Liddell[10] in England for underground workers with the exception of those at the coal face. Jacobsen[11] found an elevated gastric cancer death rate for English and Welsh miners who had simple coal workers' pneumoconiosis (CWP), but not among those having complicated CWP. He also found a dose–response relationship between CWP progression and gastric cancer mortality. Coal miner mortality rates have been reviewed by Enterline,[2] who concludes that US coal miner mortality excesses cannot be explained solely on the basis of accident and respiratory disease mortality; and by Rockette,[12] who concludes that elevated gastric cancer is the third most consistent mortality finding for coal miners behind accident and pneumoconiosis mortality. These findings and interpretations suggest the importance of questioning whether there is an occupational component to gastric cancer among coal miners, a step taken by this report.

From the Appalachian Laboratory for Occupational Safety and Health, Morgantown, West Virginia.

Epidemiologist/Demographer, National Institute for Occupational Safety and Health and West Virginia University. On IPA assignment from California State University, Hayward.

Address for reprints: Richard G. Ames, PhD, MPH, ALOSH/NIOSH, 944 Chestnut Ridge Road, Morgantown, WV 26505.

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Overview of Gastric Cancer

Gastric cancer used to be the leading cause of cancer mortality in the US.[13] Since the 1930s, US gastric cancer mortality rates have declined remarkably.[14] No convincing explanation has yet been found for this temporal decline in gastric cancer mortality;[15] nor has any convincing explanation been offered for existing geographical and regional variations in gastric cancer mortality, either in the US or world-wide.[16] Finally, no specific causes for gastric cancer in humans have been identified.[17] It is safe to conclude that the etiology of gastric cancer remains enigmatic.

Gastric Cancer Risk Factors

While definitive causal associations between environmental or genetic risks and gastric cancer have remained elusive, consideration and speculation on the etiology of gastric cancer has been extensive. General reviews of gastric cancer risks have been undertaken by Wynder *et al.*,[16] Haas and Schottenfeld,[14] and Pfeiffer.[17] Hypotheses organized around answering the question of whether the observed gastric cancer excesses among coal miners are directly occupationally related, related through correlated life-style risks, or are the artifact of fortuitous aggregations of high risk persons in the mining industry are formalized by Ames.[18]

Given an identification of excess gastric cancer mortality among coal miners, high priority should be placed on assessing the risks associated with coal miners' occupational exposures. Coal mine dust exposure, a known major occupational exposure of coal miners, is of great potential importance, not only as a factor distinguishing coal miners from other occupational groups, but also

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in terms of carcinogenic potential. Coal mine dust is composed of the coal itself plus silica, metals such as iron and trace metals, and organic matter. Detailed analyses of coal mine dust are presented by Falk and Jurgelski[19] and by Green and Laqueur.[20] Concern for the carcinogenic potential of coal mine dust centers around polynuclear aromatic hydrocarbons (PNAs, also called polycyclic aromatic hydrocarbons or PAHs), N-nitrosamines, and some trace metals.[19] In addition to the carcinogenic potential of the raw coal mine dust *per se* to which coal miners might be exposed, additional carcinogenic compounds result from molecular rearrangement of the coal molecule as a consequence of heat, nitrogen dioxide (NO_2), or other activating agents. Therefore, there is sufficient basis for concern regarding the carcinogenic potential of coal mine dust.

Processes thought to be implicated in gastric cancer carcinogenesis for coal miners include the lung clearance function,[20] the P-450 mixed function oxidase enzyme system,[21] and the nitrosation process.[19] Lung clearance is postulated to be involved in gastric cancer because the mucociliary action moves inhaled particles, some of which have been engulfed by macrophages, to the pharynx, where they are often swallowed. These particles may be important in themselves, or they could act as vehicles of transport to convey adsorbed gases to the stomach environment. The P-450 enzyme system is thought to be important to gastric cancer because these enzymes have the potential to activate precarcinogens in the lung or stomach. Nitrosation is potentially important to gastric cancer becuse it is the process through which nitrosamine precursors are converted to carcinogenic nitrosamines.

Cigarette smoking, an almost mandatory variable to include in any occupational epidemiology inquiry due to confounding effects with other variables, is an especially important covariable for consideration in an investigation of gastric cancer because cigarette smoking affects both the lung clearance function and the nitrosation process. Lung clearance is increased by light smoking and decreased by heavy smoking.[22] Smoking facilitates the nitrosation process through elevation of salivary thiocyanate, a catalyst of nitrosation.[23,24] In addition, cigarette smoke has also been identified as a possible gastric cancer carcinogen or cocarcinogen.[25]

Case-control Study

Data and Methods

A case–control study using 46 cases of gastric cancer deaths matched by age with 138 controls was developed. Cases and controls were drawn from four National Institute for Occupational Safety and Health (NIOSH) coal miner cohorts. The Lainhart and the National Coal Study cohorts were designed as representative samples of the US coal mining population; the Charleston-Beckley and National Coalworkers' Autopsy cohorts have restricted geographic focus and voluntary inclusion respectively. Coal miners for whom gastric cancer, ICD code 151, was recorded on their death certificates are compared with miners who died from other causes. The rationale for considering as similar miners for whom gastric cancer was a primary cause of death and miners for whom gastric cancer was a contributing or other cause of death is that gastric cancer is usually a rapidly fatal disease. Therefore, the decision to augment the number of cases available for analysis in this way appears justified.

Three series of age-matched miners were developed for each gastric cancer case: (1) miners who died from lung cancer; lung cancer was selected as a series due to a postulated antithesis between lung and gastric cancer,[20] (2) miners who died of cancer other than gastric or lung cancer; and (3) miners who died from noncancer, nonaccident causes. In this article, the "other cancer" and "noncancer, nonaccident" series are combined for use as controls.

The Odds Ratio (OR) is used in this study as an estimate of relative risk (RR).[26] Two parallel modes of analysis are employed. The first is a conventional case–control study which allows more straightforward control on smoking status. The second analysis is a matched-case analysis using both 2-for-1 and 1-for-1 matching. The latter analysis takes better advantage of the fact that each gastric cancer case is matched by age and date of birth (±3 years) to a miner who died from other causes. Procedures presented by Rothman and Boice[27] for use on the HP-67 calculator are employed for the matched-case analysis. For both modes of analysis, 95% confidence limits are used to test statistical significance of the association between status on the risk exposure and case–control status. Ninety percent confidence limits about the OR are presented for descriptive purposes. Summary tables are provided in the text.

Coal mine dust exposure is indexed through a surrogate measure of number of years of underground coal mining. NIOSH experience has been that this simple index is useful to measure exposure to coal mine dust.[28]

Cigarette smoking is measured in terms of current smoking status, years smoked, and cigarettes per day. The designation "current smoker" refers to miners who were current smokers at the time the cohort was established.

Coal workers' pneumoconiosis (CWP) is measured through standard posteroanterior (PA) chest roentgenograms evaluated by NIOSH-certified "B-readers" and scored on a standard NIOSH roentgenographic inter-

TABLE 1. Association between Years of Underground Mining, Gastric Cancer, and Smoking Status: Conventional Case–Control

Subpopulation, controls, and Smoking status	OR for gastric cancer risk of years of underground mining	(90% confidence int)
Both control series		
All cases	1.55	(0.85–2.83)
By current smoking status		
Current smokers	3.10	(1.15–8.37)
Non- and exsmokers	1.00	(NA)
By years smoked		
30+ years smoked	3.52*	(1.34–9.28)
Under 30 years smoked	0.55	(0.19–1.62)
By cigarettes per day		
20+ cigarettes per day	1.82	(0.68–4.84)
10 to 19 cigarettes per day	1.17	(0.37–3.70)
1 to 9 cigarettes per day	1.39	(0.29–6.62)

* $P < 0.05$.
NA: not applicable/not ascertainable.

pretation form using ILO U/C 1971 criteria.[29] Simple CWP is based upon profusion of small opacities and is scored as 0 = not present, or progressively higher categories of 1, 2, or 3 simple pneumoconiosis. Complicated CWP, also called progressive massive fibrosis (PMF), is based on the presence of large opacities and is scored 0 = not present, or progressively higher categories A, B, and C of complicated CWP. Complicated CWP may be a different disease entity than simple CWP, and progressively higher categories may not indicate additional coal dust deposition in the lungs.

While many other risks, both direct occupational exposures as well as correlated life-style risks, are potentially important, only a few can be included in a retrospective study of this type due to the simple fact that others are not available.

Results

Coal mine dust exposure is a slightly elevated gastric cancer risk. In the conventional case–control analysis, the odds ratio (OR) is 1.55 (Table 1). Using 2-for-1 matching, the maximum likelihood estimate of the OR is 1.79, and in 1-for-1 matchings, the OR is 2.40 against other cancer and 1.50 against noncancer, nonaccident controls (Table 2).

When the coal mine dust exposure risk is examined under control by cigarette smoking status, the risk is statistically elevated in miners with prolonged exposure to cigarette smoke. The elevated risk shows up in the conventional case–control analysis as an OR for current smokers of 3.10, and an OR for 30+ years smoked of 3.52 ($P < 0.05$; Table 1). In the 1-for-1 matched-case analysis, the OR for 30+ years smoked is 6.00 against other cancer and 3.00 against noncancer, nonaccident controls (Table 2). These elevated ORs do not attain statistical significance at the 0.05 P level due to the small sample sizes involved. Smoking intensity, as measured by cigarettes per day, does not modify the gastric cancer risk of exposure to coal mine dust (Tables 1 and 2).

Coal workers' pneumoconiosis (CWP) was not found to be a gastric cancer risk. In the conventional case-control analysis, the OR is 0.43 (Table 3). No distinction is apparent in terms of gastric cancer risk between simple CWP and complicated CWP. (These data are not

TABLE 2. Association between Years of Underground Mining, Gastric Cancer, and Smoking Status: Matched Case–Control

Subpopulation, controls, and smoking status	OR for gastric cancer risk of years of underground mining	(90% confidence int)
Both control series: 2-for-1 match		
All cases	1.79	(0.90–3.58)
Other cancer control: 1-for-1 match		
All cases	2.40	(1.03–5.61)
By current smoking status		
Both case and control current smokers	NA	
Both case and control nonsmokers	NA	
Other smoking combinations	1.40	(0.54–3.65)
By years smoked		
Both case and control 30+ yrs smoked	6.00	(1.26–28.54)
Both case and control less than 30	NA	
Other combinations of years smoked	2.00	(0.64–6.26)
By cigarettes per day		
Both case and control 20+ cigs/day	1.00	(NA)
Both case and control less than 20	1.00	(NA)
Other combination of cigs/day	4.50*	(1.39–14.53)
Noncancer, nonaccident controls: 1-For-1 matching		
All cases	1.50	(0.63–3.55)
By current smoking status		
Both case and control current smokers	NA	
Both case and control nonsmokers	NA	
Other smoking combinations	1.33	
By years smoked		
Both case and control 30+ yrs smoked	3.00	(0.49–18.28)
Both case and control less than 30	NA	
Other combinations of years smoked	1.50	(0.52–4.31)
By cigarettes per day		
Both case and control 20+ cigs/day	NA	
Both case and control less than 20	1.00	(NA)
Other combinations of cigs/day	1.20	(0.44–3.25)

* $P < 0.05$.

shown). Smoking status did not modify the gastric cancer risk of CWP (Table 3).

TABLE 3. Association between Coal Workers' Pneumoconiosis, Gastric Cancer, and Smoking Status: Conventional Case–Control

Subpopulation, controls, and smoking status	OR for gastric cancer risk of CWP (90% confidence int)	
Both control series		
All cases	0.43	(0.18–1.05)
By current smoking status		
Current smokers	0.28	(0.07–1.14)
Exsmokers	0.71	(0.20–2.60)
Nonsmokers	NA	

Discussion

The elevated gastric cancer risk for coal mine dust exposure is limited to coal miners who smoke cigarettes. Duration of cigarette smoking and continuance of smoking appear to be more important than the number of cigarettes smoked per day.

In relating this interaction between cigarette smoking and exposure to coal mine dust as a risk factor for gastric cancer, it should be noted that the lung clearance hypothesis implies a curvilinear relationship between smoking intensity and lung clearance: light smoking increases lung clearance, whereas heavy smoking reduces lung clearance. These data do not suggest such a curvilinear relationship between intensity of smoking and coal mine dust exposure as a risk for gastric cancer; at the same time the data are not inconsistent with the general notion of lung clearance involvement in gastric carcinogenesis.

There is a possibility that cigarette smoking and prolonged exposure to coal mine dust together, over time, overwhelm the lungs' protective defenses or some other defense mechanism resulting in an as yet unspecified state which allows the gastric carcinogenesis process to proceed. An alternative explanation might be that while neither cigarette smoking nor coal mine dust separately constitute gastric cancer risk, in conjunction they produce an undesirable carcinogenic side effect. For example, miners exposed to ammonium nitrate during blasting operations might be additionally exposed to the production of carcinogenic nitrosamines in the stomach due to cigarette smoking which enhances nitrosation or perhaps both enhanced nitrosation and activation of PNAs by the P-450 enzyme system, and, following prolonged exposure, develop gastric cancer.

The relationship between CWP and gastric cancer needs further exploration. Our data do not confirm the earlier finding by Jacobsen that simple CWP is a gastric cancer risk. If CWP is an index of exposure to coal mine dust, and exposure to coal mine dust is a gastric cancer risk, at least under the condition of prolonged exposure to cigarette smoke or cigarette smoking, then lack of a CWP risk relationship is unexpected and inconsistent with our previous findings regarding exposure to coal mine dust.

The mechanism producing the interactive effect between coal mine dust exposure, cigarette smoking, and gastric cancer requires further study. Two previously identified mechanisms, the lung clearance function and the nitrosation process, appear to deserve intensive investigation. The findings from this study are basically consistent with both the lung clearance hypothesis and the nitrosation hypothesis as possible explanations for gastric carcinogenesis. A coordinated effort of laboratory, clinical, and epidemiological investigation may be required to answer the question of mechanisms of operation.

Conclusion

In conclusion, this study demonstrates that among US white male coal miners, an occupational gastric cancer risk posed by exposure to coal mine dust exists, but only when a life-style feature, cigarette smoking, is also present. When prolonged coal mine dust exposure is conjunctive with prolonged cigarette smoking, a statistically significant gastric cancer risk occurs.

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Attch C

Attention: Director, Mining and Industry Projects
Major Projects Assessment
Department of Planning
GPO Box 39
Sydney NSW 2001

To Whom It May Concern,

Objections to Proposal MP 09_0013

I write to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013. Some of the reasons for my objection are as follows:

Water security

It is clear that the legislation and policy to protect our water supply has not kept up with the rate of expansion of extractive industries. That we are in this situation and are even considering GNRE's proposed expansion illustrates the negligence of NSW State governments, both past and present. Decisions are compromised by a focus royalty revenue at the expense of public health and the environment. ***The decision on this expansion should be deferred until adequate legislation and policy is in place to protect the Sydney Water Catchment Area.***

The proposed Expansion Project will mine areas located under the Sydney Water Catchment managed Metropolitan Special Area. The NSW Government made a commitment to securing the Sydney water system by putting into place the 2006 Metropolitan Water Plan. The NSW Government is developing a Strategic Regional Land Use Policy (SRLUP) that does not recognize drinking water security as a priority. The Sydney Catchment Authority (SCA) managed Special Areas, which provide water for more than 4.5 million people, are not recognized in the SRLUP program.

Under this situation, the Government provides no effective protection for the Special Areas, with water security and biodiversity conservation taking second place to short term revenue considerations. The concerns and recommendations of the SCA and DECCW/OEH are all too often overlooked by the DoPI and PAC. In turn the recommendations of the PAC may be overlooked by the DoPI and Director General.

The SCA manages 16,000 square kilometres, 21 dams and supplies more than 2.5 million mega litres of water to customers in Sydney, the Blue Mountains, Illawarra, Southern Highlands and the Shoalhaven, who make up around 60 per cent of the population of NSW. The 18 year life of the Major Expansion at NRE 1 coal mine sharply contrasts the never ending need for high quality drinking water and biodiversity protection. The natural assets above the coal seams are essential, irreplaceable and priceless. ***The precautionary principle should be upheld and this proposal rejected.***

Green-House Gas Emissions

- Twenty percent of Run of Mine (ROM) coal from this Major Expansion would be sold for thermal use in power stations. That is, 35% of coal content because there is 19% waste (eg rock, clay, etc) in the ROM coal. (Ref: EA, p. 189). Thermal coal is a key contributor to Climate Change.

- Green House Gas emissions have been calculated on 2.5 metres of an 11 metre coal seam. Fugitive GHG emissions escape from the remaining 8.5 metres when damaged by longwall mining. (Ref: EA, p. 43 + 180)
- GNRE do not commit to capturing fugitive methane or even commiting to a timeframe for investigating the possibilities, however, they acknowledge that it would be possible in the western section of the mine. If approved, the fugitive methane from this mine would add 0.43 per cent to Australia's TOTAL greenhouse emissions and increase our fugitive (leaked gas) emissions by six per cent - from a mine producing only about one per cent of Australia's coal. Technology exists for capturing and using methane. While acknowledging that gas utilization would be possible in the western sections of the mine, the proponent says that this capture and utilization will be dealt with in a future application. We believe it should be an inherent part of this application. (Ref: EA, p. 192) **Any expansion of mining at GNRE No. 1 Colliery should be conditional upon implementation of this technology.**
- GNRE transport 19% or 570,000 tonnes of waste (rock and clay) to India each year (Ref: EA, p. 187) needlessly emitting large amounts of greenhouse gases.
- GNRE refuse to investigate any other means of transporting coal from site other than by trucks. (Ref: Chris Harvey, Meet the Candidates State government meeting, March 2011)
- GNRE has stated that it will block off old workings so that the fugitive gas from previous mined sections will not be considered in their audit. They own the mine lease, they should be held responsible for all future, current and past mined sections. (Ref: EA, p. 192)
- GNRE have been operating this mine for over 8 years, energy audits should be part of this application rather than when practicable. (Ref: EA, p. 193) The application should not be approved without a condition of energy audits.
- GNRE states, *measurements identified by the company have the potential to reduce total emissions by at least 59%.* The proponent should be required to write energy audits into the Statement of Commitments. (Ref: EA, p. 194)
- The GHG emissions section was 11 pages of a 2500 page application document. This clearly shows the commitment to the environment by GNRE and DoPI. DoPI stated in their last recommendation to the PAC for the Preliminary Works Project, *it must be noted that if the project was not allowed to proceed, the resultant gap in the coking coal supply would be almost certainly filled another coal resource. In other words, removing the GHG emissions from the project would not likely result in any decrease in global CO2 emissions.* (Ref: DoPI EA Report, Oct. 2011). This is irresponsible. Developed nations such as Australia should be leading the way in reducing Greenhouse Gas emissions, not claiming "if we don't do it, someone else will".

Mining Method

- The three-tier mining to be used in Wonga East is very unique and has many problems and concerns in regard to subsidence. According to Pells and Pells 2012 report on the proposed expansion, as exhibited with the Preliinary Works Modification

1 proposal, the unpredictable nature of subsidence is exacerbated by limited precedent in multi-seam mining.

- This three-tier mining method is being used under the Sydney Water Catchment Special Area and in very sensitive environmental areas.
- Pillar run in the overlying seams is an ever present danger.
- Longwall 4 End of Panel Report still hasn't been released to the public; this vital information is therefore not available to the public at the time of the Major Expansion exhibition .
- Longwall mining cannot be stopped should a major subsidence event occur. According to Counsel representing Gujarat NRE in the Land and Environment Court Case Number 40615 of 2012 – Illawarra Residents for Responsible Mining Inc VS Gujarat NRE Coking Coal Ltd, it is extremely difficult, dangerous and expensive to stop a longwall mining machine before the intended end of the panel. Legal representative, Simon Ball of Minter Ellison in the Points of Defence, filed 31 July, 2012 refers to "***the likely geotechnical and safety risks and consequences*** of [stopping the longwall mining], having regard to the fact that the extraction of coal from Longwall 4 using longwall mining methods has commenced". The proponent's legal Counsel goes on to cite "The adverse financial impact on the respondent and third parties, in the order of tens of millions of dollars, including loss of $15 million in buried equipment and $18 million in lost revenue from foregone coal production from Longwall 4 should [the longwall mining be stopped] giving rise to geotechnical failure in longwall 4 and consequential mine collapse". He then adds to these consequences "the redundancy of 50 employed and contracted personnel, being the Longwall 4 mining crews, should" [the longwall be stopped before the intended end of the longwall mine].

  The following can be deduced from these assertions: while it's technically possible to stop a longwall, it would be prohibitively expensive and dangerous to do so. GNRE makes no commitment to stop mining should unacceptable damage be caused. GNRE is in a precarious financial position and this means that realistically they are less likely to stop mining in the case of significant subsidence.

  It is irresponsible for DoPI to approve longwall mining under the Sydney Water Catchment Special Area given the risks of subsidence and damage to the ground above and associated water courses, including Cataract Creek and River, the shores of Cataract dam, Wallandoola Creek, Lizard Creek and extensive areas of upland swamps. It is especially so given the commercial imperative of the proponent and how *very difficult and dangerous it is,* according to the Proponent's legal counsel, to stop a longwall. ***I submit that there should be no mining under Sydney Water Catchment Special Area.***

Community consultation

The Community consultation strategy, as outlined on pp 172 – 175 of the EA, contains a number of claims that are fanciful at best, and may also be construed as not truly representative of what actually occurred. Rather than spend time spelling them out here, I point them out in a copy of those pages, included as attachment 1 to this document.

This misrepresentation is annoying and frustrating; I know what happened at these Information sessions and can read what was said – or rather not said – in the Newsletters. However, what really disturbs me is the prospect that other information has been misrepresented in the EA that I am not able to verify and that this will have serious impacts on the water catchment and the ecosystems on the Woronora plateau.

Accoustics & Public Health

- Real time monitoring is not being carried out on site by GNRE as they cannot afford to purchase the monitors. (Ref: Dave Clarkson Russell Vale Golf Club Info session.
- It is not stated if the background noise monitoring was done during a period when the mine was not operating. (Ref: EA p152)
- The EA states that the major noise sources at the mine are at a lower level of the site and so residential areas are not subject to acoustic drainage flows. This is erroneous. Noise sources and Australia Height Datum: exhaust fan- 135m; main compressor- 135m; conveyor and diverter building- 120m; top of stockpile- 91m. The residential area ranges from about 75m to 30m AHD. (Ref: EA p156) (Ref: JBK Dwg 282800)
- All the Australia Height Datum annotations have been removed from the above mentioned JBK drawing. (Ref: JBK Dwg 282800)
- Noise barriers are again being proposed on the north side of the site to protect the residential area. (Ref: JBK Dwg 282800) These same noise barriers were included in the Preliminary works approval but were removed in GNRE's Modification 1, and were said to of no use. The apparent reason for them being removed is that GNRE can not afford to construct them. (Ref: Mod 1 PAC determination)
- These noise barriers were removed in a very inappropriate and misleading manner. They were deleted from GNRE's Statement of Commitments without tracking, high lighting or explanation. (Ref: Mod 1 EA SoC)
- The noise modelling in the EA did not include all the acoustic significant plant, it excluded the exhaust fan (a known source of noise pollution), the Wongawilli conveyor, the Bulli Balgownie conveyor, the conveyor diversion, and the trucks (either on site or Bellambi Lane) (Ref: p159)
- All noise modelling has been based on the sound barriers on the north side of the site being in place. (Ref: Annex H p26)
- There is also an assumption that the nearest noise monitors receive the loudest noise. This doesn't happen in reality at present around the site. (Ref: p159)
- Predicted noise levels in Bellambi lane have been based on traffic volumes (existing and predicted) and existing noise levels. 94% of the existing traffic volumes are class 1 and 2 vehicles, not huge coal trucks. (Ref: Annex H noise assessment)
- There is evidence that industrial noise at very low frequencies can have serious public health impacts. Even if it is inaudible, or unable to be measured on currently employed instrumentation, which only employs limited frequencies, it can impact the nervous system and cause various illnesses.

Russell Vale is <u>not</u> an appropriate place in 2013 for an enormous expanding colliery.

Air quality & Public Health

Particulate pollution is a particularly concerning aspect of the proposal, due to the residential proximity of the colliery. Coal particulates are known to cause negative health impacts. NSW State government has a responsibility to NSW citizens to protect public health.

There are a large number of areas in the EA where air quality information, measures and commitments are inadequate:

- The monitoring required under the Preliminary Works approval hasn't even been put in place. However, we are now considering the next stage, the Major Expansion application.
- The Environmental Assessment (EA) makes comparison with purported air quality assessments undertaken in Stage one, but no actual data has been obtained from real time monitors. The real time monitors have still not been purchased.
- The GNRE No. 1 Colliery only models and measures particulate matter down to 10 microns. It does not measure or model the dangerous particulate matter of 2.5 microns and below.
- This EA still relies on background data recorded 6 km away in Wollongong.
- GNRE relies solely on water spray to suppress dust on site. There are many more basic measures that should be implemented to better manage air quality.
- The site has no vegetative wind breaks in place or planned.
- The stockpile conveyers are not fitted with telescopic shoots.
- The stockpile orientation presents maximum surface to wind erosion.
- The only exhaust fan from the Wongawilli seam is not filtered and discharges dust, methane and nitrous oxide over West Corrimal.
- The Air Quality section of the EA talks about only one stockpile and the predicted contour maps definitely only show one stockpile, but there are three.
- The EA states that the 3 million ton expansion generates less dust than Stage 1 Preliminary Works, but this is not reflected in the contour maps.
- The EA states that exceedences around the mine result from wind blown salt, agricultural dust and other operations in the area, but coal dust of over 20% of total dust content has been recorded in gauges down Bellambi Lane.
- Drip waste from coal trucks is still an issue in Bellambi Lane. It dries on the street and turns to dust.
- GNRE do not follow or embrace best trade practice in regard to dust or follow the recommendations in NSW Environmental Compliance and Performance Report – Management of Dust from Coal Mines.
- Stock pile 2 of 140,000 tonnes is pushed by bull dozer, creating excessive coal dust, to reclaim areas in stockpile one or three.
- Truck loading facility not constructed, so loading will occur from stockpiles until completed. (Not included in Statement of Commitment, so there is no time frame for this.)
- Trucks loading from stockpile are on unsealed roads, creating coal dust.
- Dust down Bellambi Lane has not been considered in the modelling, or included in the contour maps.

Russell Vale is <u>not</u> an appropriate place in 2013 for an enormous expanding colliery.

Close Proximity to Residential Area and Public Health and Wellbeing

The GNRE No 1 Colliery is located too close to residential areas. This may have been a great place for a mine and colliery in 1870 however, nostalgia aside, it is an inappropriate location in 2013.

- Polluting infrastructure is located close to residences and community facilities:
  - 360,000 tonne stockpile located 225m from residences, 375m from a school, 500m from a Child Care Centre
  - Driveway with 158,000 truck movements per year located 75m from residences and 100m from a Child Care Centre.
  - Truck loading facility 250m from residences.
  - Bulli Balgownie conveyor within 300m of residences
  - Bulli-Balgownie machine house including main mine compressor within 375m of residences.
  - Exhaust fan from Wongawilli Seam 475m from residences. (Ref: JBK Dwg 282800)
- Stockpile options up to 840,000 tonnes, 14 storeys high. (Ref: EA, p. 56)
- The only exhaust fan from the Wongawilli seam is located at the Russell Vale Colliery. GNRE have told the community it could have up to five fans. (2011 Complaints meeting with residents, Daniel Skora & Don Jephcott)
- Exhaust fan has not been mentioned in this Major Expansion EA. The exhaust fan is not filtered.
- Bulli-Balgownie conveyor was supposed to be decommissioned but GNRE state they do not have the resources carry out the associated work. (Mod 1)
- Bulli Gully Creek re-alignment and flood mitigation postponed due to GNRE not having the resources. (Mod 1)
- Sound walls not constructed to protect residential properties due to GNRE not having the resources. (Mod 1)
- The site is so restricted that GNRE are forced to have the mega stockpile running East West. This orientation presents the largest surface area to the prevailing wind and therefore wind erosion. (Ref: JBK Dwg 282800)

This mine was on the verge of closing down in 2000, rundown and depleted and considered not financially viable by Australian mining companies, when it was bought by the current owner in the full knowledge that there are residential areas in close proximity and that the infrastructure was not up to modern operational standards. The proponent does not have the investment capital to modernise the colliery infrastructure. ***Therefore this proposal should be rejected, as the proponent is either unable or unwilling to invest to modernise the colliery's infrastructure.***

Stock pile threat to Public Health

Different information sessions have provided differing and misleading information about the stockpile. First it was going to be 120,000 tonnes, then it would be 200,000 tonnes. The EA states options of between 315,000 and 840,000 tonnes with the preferred option being 360,000 tonnes. This 360,000 tonne stock pile will be 32m high and located within 225m of residences, 375m of a school and 500m of a Pre-School. Rather than a working stockpile, this will be a holding stockpile for the loading of bulk carriers.

DoPI surely cannot be seriously considering allowing a stockpile such as this so close the residential areas?!?!

Exhaust fan and implications for Public Health and Wellbeing

The only exhaust fan from the Wongawilli seam is located in the Russell Vale colliery site. In fact it blasts exhaust and pollutants at where I live. It doesn't even blow up into the sky. It blows at the houses in West Corrimal.

The Exhaust portal from the Wongawilli seam is noted on the plans as "a RTV portal" (rubber tyred vehicle). There are numerous pages dedicated to the other exhaust shafts to the Bulli and Balgownie seams but there is no mention of how the Wongawilli seem is exhausted. ***This is highly misleading.*** The other exhaust shafts will in fact not be utilised until GNRE start mining the Wonga West area. This means the only extract fan for the Wongawilli seam 475m from residences exhausting dust, methane and nitrous oxide. The proponent informed residents that there may be up to five fans connected to this exhaust portal. The exhaust from this portal is not even monitored.

DoPI should not make any decision on this proposal until the exhaust portal is investigated. If it is safe, it should be re-positioned so that it blows on the Administrative buildings of the Colliery, rather than people's homes. If it is not safe, what on earth is it doing operating in this day and age?

This mine was purchased for future operations and seeks approvals for development and operations in 2013 and must be compliant under the strictest regulations possible because of its close proximity to the existing built up residential area – a residential area that pre-dates the ownership of the mine by its present proprietors.

Socio Economic factors

GNRE's public relations and media arm repeatedly raises the point of the employment it provides in defence of its operations and its expansion. No-one wants to see people's jobs under threat. However, this expansion is not about creating jobs.

The proponent's Modification EA states- *"The proposed modification will have a range of positive social and economic impacts to the local area, including: maintaining current employment of approximately 222 employees."* Their Preliminary Works DA stated that there were to be 259 employees plus 78 contractors, a total of 337 jobs. The 222 employees is 115 down from the stated in the Preliminary Works DA and yet there is no explanation of

why this has occurred. Presumably it is because the increased mechanisation of the mine and the purchase of a $90 million longwall mining machine reduces the need for employees.

This drastic reduction in employment at the mine should not go overlooked or undisclosed; losing 34% of its workforce in a modification to any development approval is a major concern. ***It is also a further point supporting the rejection of this proposal so that GNRE can focus on completing the first workings extraction that it claimed it would complete when it gained the Preliminary Works approval.***

Furthermore, the jobs remaining at No. 1 Colliery should be put in the context of the overall workforce in the Illawarra. These are highly paid jobs and, as such, they are fiercely defended. However, they are a very, very, very small percentage of the jobs in the Illawarra. This perspective should be maintained by DoPI in their assessment of this application. The very, very, very small number of jobs provided by the mine as outlined in this proposed Expansion in no way justifies the negative impacts in terms of public health, environmental damage and overloading of infrastructure that will result from this proposed expansion.

In an interview on WIN TV at the commencement of the exhibition for this expansion, Chris Harvie, Public Relations Manager at GNRE claimed that the expansion would bring $1 billion to the region. Staff at the information session on the expansion were unable to confirm or deny this and were not able to provide any detail supporting this claim, other than "it says it in one of our annual reports (or board reports)". DoPI should look closely and critically at these claims. Even if this claim were accurate, this is obviously not a huge amount of revenue flowing to the region ***over the 18 year duration of the expansion.*** We can compare this claim of $1 billion in revenue to a study released at about the same time as the WIN TV interview demonstrating that the University of Wollongong generates $2 billion of revenue for the region ***each year. The minor revenue stream that will purportedly be generated by this proposal in no way justifies the negative impacts in terms of public health, environmental damage and overloading of infrastructure that will result from this proposed expansion.*** Similarly modest donations to sports clubs in no way justify the negative impacts in terms of public health, environmental damage and overloading of infrastructure that will result from this proposed expansion.

Transport – Public Health and Infrastructure Overload

The EA states that there will be 682 truck movements daily at peak times. With trucking hours 7.00am to 10.00pm, ie 15 hrs/day, this means 45 trucks per hour OR 1 truck every 80 seconds (Ref: EA, p. 200). Even the current trucking arrangements are severely disruptive for residents situated along Bellambi Lane. People on the distributor also complain of truck noise and dust and the proponent has been unable to solve these problems.

This is a key aspect of the proposal and yet it was worrying that Environmental Officer, Matt Campbell referred to the 682 truck movements as an error at the Public Information session on the Expansion at the Russell Vale Golf Club. Matt stated that the trucking staff had said it was impossible to load that many trucks in a day, and ERM must have made a mistake in the EA. The implication was that we shouldn't worry about the increase in trucks. This statement begs a number of questions:

- If this is incorrect, what is the correct figure?
- If this is incorrect, what else in the EA is also incorrect?
- How many members of the public were led to believe that this figure is incorrect?

- And finally, will the EA be re-exhibited with the correct information, because if 682 trucks per day is incorrect, then the proposal should be re-exhibited and people should be allowed to comment on a proposal that is correct.

There are also some other aspects of the transport section that are very concerning:

- Promises about updating truck fleet, covering loads, drivers' Code of Conduct, Tool box Talks, etc (Ref: EA p. 204, Statement of Commitment p 512) are recycled from previous Major Project Applications. These measures have never been effectively implemented and it is time that DoPI held GNRE accountable for this.
- Total truck movements of coal trucks – 158,000 per annum. This means the percentage increase in trucks from 16,000* to 158,000** equals ***987.5% increase, not the 202% as stated in the Conclusion***. ***This is very misleading.***
  * 282,451 tonnes last financial year divided by 35 tonnes per truck by 2 way trip to PKCT
  ** 3,000,000 tonnes per year divided by 38 tonnes per truck by 2 way trip to PKCT (Ref: EA p. 534)

Flood risk & responsibility of DoPI & the proponent

The Bellambi Gully Creek diversion and flood mitigation was postponed for a year in the Mod 1 approval. Flooding is becoming more common as Climate Change escalates. (For example, there have been major floods in Brisbane just two years apart in 2011 and 2013.) The determination on the Mod 1 states that GNRE accept responsibility to bear clean up costs of damage to people's homes due to a flood event. However, the previous record of the proponent in the face of disasters, does not instil confidence that the proponent would take responsibility for the damage caused. It is possible that the company would go into receivership, as it did in New Zealand after the Pike River disaster. Gujarat NRE was a major shareholder in Pike River Coal Ltd.

"Trade creditors and New Zealand Oil & Gas may be the biggest losers from the receivership of PIKE RIVER COAL LIMITED, according to the first report from PricewaterhouseCoopers. Unsecured creditors owed $31.9 million are unlikely to get anything back, according to the assessment from John Fisk, David Bridgman and Malcolm Hollis" cited in http://public.sharkpatrol.co.nz/index.php?page=search&dosearch=true&stype=nzcompany&conumber=114243

References:
http://public.sharkpatrol.co.nz/index.php?page=search&dosearch=true&stype=nzcompany&conumber=114243
http://www.stuff.co.nz/national/pike-river-mine-disaster/7933606/Former-Pike-River-directors-omit-miner-detail

The State government needs to ensure that security is provided by the proponent that would cover the potential flood clean-up and restoration of homes that may occur as a result of the proponent failing to complete promised flood mitigation measures on Bellambi Creek and the

DoPI endorsing this failure by approving the delay of the flood mitigation measures in the Mod 1.

In summary,

- I submit that there are serious errors in this EA. Much documentation is inadequate or out of date. Therefore, the EA should be corrected, brought to acceptable standards and re-exhibited for public comment.
- NO extractive industries should be allowed to operate in or beneath the Sydney Water Catchment Special Area.
- Russell Vale is not a suitable place for a Colliery in 2013. This proposal has massive public health implications and is totally inappropriate for what is now fundamentally a residential area.
- Gujarat NRE is an unsuitable proponent. They have demonstrated that they are unwilling or unable to bring the colliery to modern standards.

I have not made a reportable political donation.

Yours sincerely,

Name: Kaye Osborn
Address: 2 Powell Avenue, Corrimal, 2518
Date: 1 April, 2013

APPENDIX 1 TO SUBMISSION RE MAJOR EXPANSION - KAYE OSBORN. EXCERPT FROM EA pp 124-127 WITH COMMENTS.

6.3 COMMUNITY CONSULTATION

6.3.1 *Overview of Strategy*

The community consultation strategy for the proposal was structured to provide open and transparent communication with the local community and key stakeholders throughout the environmental assessment process. The consultation strategy aimed to ensure that:

- the community was aware of the proposal and the environmental assessment process;
- there were multiple mechanisms for community participation and for ongoing communication and feedback;
- opportunities were provided for any queries to be addressed directly by the Project team to minimise the effects of incorrect information being passed through the community;
- community issues and concerns in relation to the Project were identified at an early stage of the environmental assessment;
- issues raised by the community were actively assessed and managed throughout the Project; and
- appropriate solutions and mitigation strategies were developed to minimise potential negative impacts associated with the Project.

In order to meet the information needs of different community groups, a range of consultation strategies were adopted. These included:

- a 1800 phone number staffed Monday to Friday throughout the Project. An email contact address was also established, where community members and stakeholders could write in raising their concerns; When did this operate? Prelim Works exhibition & immediately prior. Not for expansion surely, as we were never notified. This also contradicts Point 3 above.
- a series of newsletters distributed to the local area and to anyone registering interest in the Project; and
- a series of community meetings and information sessions held in the local community hall and advertised through the newsletter and local press. Very limited number.

In addition to the strategy outlined above to inform the community of this proposal, a Community Engagement Strategy was prepared by Twyfords (2012) for implementation of the Preliminary Works Project approval (see *Annex E*). The strategy is based on a 'Co-Design' process aimed to invite and involve the Community and Stakeholders of NRE to define the key principles, parameters, and processes to implement an effective Community Engagement Strategy.

The principles of this strategy are relevant to the Project as the concerns of the community and findings of the strategy are in keeping with the Preliminary Works Project approval.

This reads like a textbook community consultation strategy but in reality very few members of the community know about the expansion.

Modification 1 was Sept/Oct (Aug 12) & Twyfords sessions did NOT address expansion. Therefore NO community info sessions between Oct 2010 & March 2013. Oct 2010 session & prior did not address current proposal.

The following methodology was used to help build a genuine partnership between the local community and stakeholders with NRE while meeting the needs of the DP&I *Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects (2007)*:

1. Identify stakeholders/community of interest and the role they can play in NRE's Community Engagement Strategy;

2. Interview key community stakeholders and research/understand their interests and experience of effective community engagement. Determine from the community what they believe constitutes 'effective community engagement';

3. Co-design the Community Engagement Strategy with a representative forum of its stakeholders, by exploring techniques to achieve the Community Engagement Principles drawn from Step 2 Community Interviews;

4. Meet with DP&I to review and discuss the NRE co-designed Community Engagement Strategy;

5. Using the outputs from above steps to prepare a draft Community Engagement Strategy and review with representatives from the community; and

6. Complete the Community Engagement Strategy and present to DP&I for comment and endorsement.

The main findings from the community members surrounding the Preliminary Works Project was that "*effective Community Engagement is about being a 'good neighbour' and that principles, rather than the technique, should guide the Community Engagement Strategy development*" (Twyfords 2012, (*Annex E*)).

The use of a Community Consultative Committee (CCC) that is commonly used in other mine sites was not selected as part of this strategy. NRE believes that a CCC at the core of the strategy would have a high risk in compromising both effective engagement, and effective business operation (Twyfords, 2012). . However with the granting of approval for Stage 1, the Preliminary Works Project The DP&I rejected this approach and required the formation of a Community Consultative Committee

A Community Consultative Committee for the NRE No.1 Colliery has been formed and provides a formal mechanism for considering and dealing with local community issues. A summary of the community consultation for this proposal is provided in *Table 6.2*.

Table 6.2 Community Consultation Summary

Date	Consultation	Purpose
April 2008	Newsletter 1	The newsletter outlined key community contact details (1800 number and email).
April 2008	Information Session 1	To provide an opportunity for the wider community to obtain information regarding the Project. It also provided a forum for issues of concern to be raised directly with Project team members. Representatives from both NRE and ERM were present to respond to questions. Community members were encouraged to register their interest to ensure that they received all future Project information.

- Did not address Expansion.
→ With change of staff list was not used.

Date	Consultation	Purpose
October 2008	Newsletter 2	To provide the wider community with an overview of the Project and the environmental assessment process and ensure the community was kept up to date with the progress of the environmental assessment and Project development. The newsletter also advertised the date, time and location for the Project information session held at Corrimal Community Centre.
October 2008	Information Session 2	To provide a greater understanding of the scope of the assessment and the steps required to gain approval. To provide an opportunity for community feedback
December 2008	Newsletter 3	To provide feedback on the previous information session.
March 2009	Newsletter 4	To update the community of the progress of the Project and inform them on the next upcoming information session.
March 2009	Information Session 3	To keep the community informed of the Project progress and provide an opportunity for community feedback.
February 2010	Newsletter 5	To inform the local community of the upcoming information session at which preliminary assessment results were to be presented.
March 2010	Information Session 4	To provide some feedback to the community on the assessment so far and provide an opportunity for community feedback.
May 2010	Newsletter 6	To inform the local community of the upcoming information session at which NRE's plans to divide the Project into two stages were to be presented.
May 2010	Information Session 5	To advise the community of NRE's latest plans and the proposal to divide the Project into two stages, providing detail of Stage 1 Preliminary Works.
October 2010	Newsletter 7	To inform the local community of the upcoming information session at which the Environmental Assessment for the Preliminary Works Project was made available.
October 2010	Information Session 6	To present the Environmental Assessment for the Preliminary Works Project, during public exhibition period.
February 2012	Community Engagement Interviews	A series of 12 one-on-one interviews were conducted with a cross-section of the community from the Wongawilli and Bellambi/Corrimal areas as part of Community Engagement Strategy.
March 2012	Community Workshop	A series of three Community Co-Design Workshops were conducted with members from the Wongawilli and Bellambi/Corrimal communities to determine the community engagement strategy that will best support the 'good neighbour' principles raised by community members and draft the process(es) by which NRE and the community will work together on both mine and neighbour relations issues.
August 2012	Community Information Day	To inform the Public about the LW 4 & 5 and, main gate 6, 7 & 8 Pt3A modification application. Issues crossed over into Major Project Expansion project.
21 August 2012	Community Consultative Committee Meeting	Update of operations was provide to the Committee Members for dissemination to the broader community.
9 October 2012	Community Consultative Committee Meeting	Update of operations was provide to the Committee Members for dissemination to the broader community.

Did not address Expansion.

Sham process detailed in complaints to DoPI. Did not cover expansion. NO info provided on Expansion.

It is reported that Expansion was not covered. Although CCC Members ~~~~ can be expected to pass info to the community ~~about~~ through their available channels they CANNOT be expected to disseminate info. broadly or on the scale required for this Major Expansion Project.

The majority of concerns raised at the information sessions relate to road haulage and noise and dust from the colliery. Water flows and water management in Bellambi Gully Creek downstream of the Russell Vale site have also raised some concern.

Ongoing consultation will be undertaken throughout the life of the Project to ensure the community remains informed of the mine's progress, the outcomes of the EA, and to provide an open forum for addressing questions, issues, concerns or complaints. Consultation will be in keeping with the Community Engagement Strategy developed by Twyfords (2012).

Table 6.3 lists the key issues raised by the community, which have been addressed as part of this Project.

→ How so? This strategy does not hold credibility. Serious flaws in the process were pointed out in a series of complaints to DoPI, leading to establishment of a CCC, contrary to the wishes of the proponent. CCC must not be disbanded. Recommendations from the Twyfords strategy could augment the CCC.

Attch D

Submission to the New South Wales Department of Planning

Major Projects Application 09_0013 NRE No.1 Mine - Russell Vale

Philip Laird, PhD, FCILT, Comp IE Aust, University of Wollongong April 2013

This submission is based on research conducted at the University of Wollongong. However, the views and research findings are the responsibility of the writer.[1]

1. The Illawarra Regional Strategy

Attention is drawn to statements on page 4 of the 2006-2031 Illawarra Regional Strategy of the Department of Planning as follows (emphasis added).

"It is important that the Region's transport networks support economic growth and maximise the efficiency of freight transport. In particular, what is required are strategic transport corridors to support development of the port of Port Kembla, ***increase the proportion of freight transported by rail****, efficiently link regional centres and towns, and support public transport."*

The application to increase road haulage of coal to a high level of 3 million tonnes per annum has the marked potential to reduce *"the efficiency of freight transport"* from increased road congestion, increased road wear and tear and increased energy consumption. More coal on road would also reduce *"the proportion of freight transported by rail".*

2. Other concerns

A. It is of note that the original consent granted in 1979 by Wollongong City Council for a coal loader at Port Kembla was for a maximum of 2 mtpa of road haulage. This limit was imposed in June 1979 with the consent of the NSW Government.

State Environmental Planning Policy 7 (SEPP 7) was gazetted in December 1982 by the NSW Minister for Planning, and, that this occurred after the then new Port Kembla Coal loader had been officially opened on 22 November 1982, and in part because the 2 mtpa limit consent condition became untenable in the absence of

[1] This submission updates edited submissions of 2008 and supplementary submissions (2009) to the Department regarding application 08-0009 by the Port Kembla Coal Terminal (PKCT) to both lift the curfew and to potentially expand road receival of coal to 10 million tonnes per annum (mtpa), and, a December 2010 submission re 10-0046 NRE No.1 Mine - Russell Vale.

committed construction of a conveyor from the South Bulli Colliery to purpose built rail loading facilities near Bellambi Station.

As the Company wishes to expand its production of NRE No. 1 Mine above one mtpa to 3 mtpa as foreshadowed, it is suggested that consideration be given to:
EITHER construction of a conveyor from the South Bulli Colliery to rail loading facilities near Bellambi Station (as agreed to by the previous owners of the mine c1980)
OR opening of a new mine outlet and connection to the long proposed Maldon Dombarton rail link.

It is submitted that the applicant, in the Environmental Assessment, should have addressed these issues. It is to be trusted that these options will be addressed by the Department in its assessment process.

B. SEPP 7 did, however, by way of compensation to Wollongong City residents, and users of the Mt Ousley Road and other highways, retain a curfew to preclude coal trucking at night, as well as Sundays and Public Holidays. In addition, SEPP 7 did effectively reserve coal from Tahmoor and Western Mines to rail.

Despite the provisions of SEPP 7, the road haulage of coal continued to impose adverse social and environmental impacts on the City of Wollongong. These included:

- Ongoing loss of life in fatal crashes involving coal trucks on public roads
- Air pollution and noise from coal trucks on and near public roads
- Increased road wear and tear
- Contributing to road congestion at certain times, and
- Increased dust pollution at the Port Kembla Coal Loader as road receival was, and is, a dustier operation than rail receival.

As a result, a number of reports were commissioned. In addition, Wollongong City Council, reflecting the concerns of ratepayers and residents, formed a Coal Transportation Task Force that reported in 1990.

Other reports of note include those of the:

- Coal Resources Development Committee (1989) Strategic Study of the Southern Coalfield
- NSW State Ombudsman (1984) into the Maritime Services Board re the operation of the Port Kembla Coal Loader
- Air Quality in the Illawarra (1985) by the Illawarra Environment Centre

- Bureau of Transport Economics (1992) Relative Efficiencies in the Transportation of Commodities
- Energy Research and Development Corporation (1993) Land Freight Transport Energy Evaluation
- Air Quality in the Illawarra, and Transport Options (1992) A Young and P Laird
- Report of the Commissioners of Inquiry (1993) re Port Kembla Coal Loader, and
- The Kinhill Engineers Report for Wollongong City Council (1995).

  Some comment from these reports follows in Appendix A.

C. The applicant in the current application cites a 2010 report by Olsen Environment Consulting for NRE re: Surface facilities and On-site Traffic Preliminary works Part 3A, it states (page 26) that "during the 1980's and 1990's, the Mine was producing up to 3 Mtpa of Run-of Mine Coal. Washed coal was transported from the site by 25t capacity coal trucks regularly transporting between 8,000 and 12,000 tpd on a typical day and peaking at 18,000 tpd. This was achieved at a coal truck access rate of typically 35 per hour, ranging up to 55 per hour. During these times an average of approximately 250 truck loads per day (to and from the site) were required to achieve the transport task."

A point of clarification is needed here. At that time, it is understood (and implied) that the coal mine (South Bulli) then had a washery, so that the actual transported coal was less than 3 mtpa (with a question re the coal washery discard).

The 1993 report Land Freight Transport Energy Evaluation Main Report-Part One cited above on page 119 notes, inter alia, South Bulli having a 1991-92 tonnage of 1.7 mt (From the PKCT EIS) with a haulage length of 14 km (and hence a road freight task of 4.2 net million tonne km.

This 1.7 mt is much less than the claimed 3 mtpa.

In any event, an updated 2010 assessment of cumulative impacts is needed, including that due to additional numbers of grain trucks approved in 2011, and extra numbers of quarry materials.

D. It may be argued that the history does not matter. On the other hand, the haulage of South Bulli coal over the years through the shopping centres of Corrimal and Fairy Meadow pending the completion of the Northern Distributor meant that both residents and shop keepers were subjected to excessive road safety risks, noise, air pollution and other loss of amenity.

An outline of the wider problem follows (from a joint authored book of this and other writers *Back on Track* ... UNSW Press 2001) of the previous situation.

BOX 2.2 PORT KEMBLA COAL EXPORTS

In May 1979, no fewer than six lives were lost in two road accidents involving coal trucks. The public reaction was a massive petition signed by 40,000 people and presented to the NSW Parliament: *We, the residents of Illawarra and Southern Tablelands living on the road haulage routes used by heavy transport hereby request your consideration of our petition. I, the undersigned, am appalled by the continuing carnage on our roads and in particular Mt. Ousley, and join in demanding the local, State and Federal authorities take immediate action to ensure motorists' safety.*

I further demand the relevant authorities make provisions for the complete abandonment of coal haulage by road.

The immediate NSW Government response was a 40 km per hour speed restriction on heavy trucks coming down Mt. Ousley, and a thorough mechanical check of the entire coal truck fleet. The results, as reported in 1980 (McDonell) by a Commission of Inquiry showed that some 30% of the coal trucks had major safety defects, mostly in the braking and steering systems. This led to the ongoing efforts of the NSW authorities in annual and random safety checks of the mechanical condition of heavy trucks operating in NSW.

However, in 1983, Illawarra coal trucks were reportedly involved in fatal crashes at rates, per 100 million vehicle kilometres, of up to three times higher than NSW averages for all articulated trucks. During the eight years from 1978 to 1985, trucks hauling coal to Port Kembla were reportedly involved in some 27 road fatalities. Further efforts by the NSW Government and the coal and trucking industry in the late 1980s, along with much road upgrading, lead to an appreciable improvement in safety in coal trucking. However, the upgrading of main roads used by coal trucks and other vehicles came at a large cost, estimated to exceed $250 million.

In 1983, the NSW Government commenced work on a Maldon - Port Kembla railway. However, after an outlay of some $50 million on new track, half a bridge, and a start on a tunnel, work was stopped in 1988 by the Greiner Government.

Other external costs of coal trucking to Port Kembla include road congestion in urban areas, air pollution, vibration, and noise. The noise from coal trucks was found to exceed NSW Government road side noise guidelines and was appreciably more than the noise from coal trains (Healthy Cities Illawarra/EPA, 1993). Subsequently, extensive noise walls extending for several kilometres along Mt Ousley, and other roads used by coal trucks near residential areas in Wollongong City, were installed.

The impacts were well summarised by a NSW Coal Development Strategies Industry Task Force report (1990, p59):*"Road haulage has significant community costs including noise and dust pollution, increased energy usage, increased road maintenance, safety hazards, negative effects on tourism and complaints from local residents".*

E. Even if one sets the history aside, the proposed level of road haulage of coal at 3 mtpa to the PKCT from Russel Vale imposes significant social and environmental impacts.

External costs do not appear to be a Director - Generals requirement for this application. They are however, a required part of the AusLink project assessment in the *National Guidelines for Transport System Management In Australia* released in 2004 (and updated in 2006) by the Australian Transport Council.

F. One external cost is the under-recovery of road system costs from articulated trucks hauling heavy loads over large aggregate distances each year. Here, the Productivity Commission independently found in 2006 that the current methodology used by the National Transport Commission for determining charges is "conservative" by international standards (i.e. resulting in lower charges).

External costs were also addressed in a 2001 Australian Rail Track Corporation Track Audit (by Booz Allen and Hamilton) which gave unit estimates for *'... noise pollution, air pollution, greenhouse gas emissions, congestion costs, accident costs, and incremental road damage costs"* for road and rail freight in both urban and non-urban areas.

These unit estimates were revised as part of research at the University of Wollongong for Queensland Transport as follows (in year 2000 values): 2.75 cents per ntkm for road haulage in urban areas, 1.98 for road haulage in non - urban areas, 0.43 for rail haulage in urban areas, and 0.17 for rail haulage in non - urban areas. The cost for road haulage in urban areas, with indexation, is similar to the amount of 3 cents per net tonne km accepted by Wollongong City Council in 1990.

It can be seen that rail has significantly lower external costs for the movement of freight in general and coal in particular by heavy trucks on urban roads.

It is recommended that the proponent be required to give consideration to all external costs, with some attempt as to their quantification.

The NSW Independent Pricing and Regulatory Tribunal in its **2012 Review of Access Pricing for the NSW Grain Line Network** gave detailed attention to external costs. Page 33 of this report notes two different sources including a Queensland study, which was quoted in a submission by this writer, and a report by Booz Allen Hamilton undertaken for the Ministerial Taskforce considering the case for reopening of the Cowra grain lines in NSW. These external cost unit rates are replicated in Table 4.1 below.

Table 4.1 Externality unit rates used in the Draft Report (c/ntk)

Transport mode Location	Laird externality unit	Booz externality unit
Road Urban	3.88	2.11
Road Non-urban	2.79	0.31
Rail Urban	0.61	0.75
Rail Non-urban	0.24	0.09

Source: Laird submission (2011); Booz (2011).

Standard methodology of assessing road system costs includes not only vehicle numbers, but three other standard and important indicators: Passenger Car Equivalents (including 3 for a semitrailer and 4 for a B-Double), Average Gross Mass Vehicle kilometres, and, Equivalent Standard Axle kilometres. These parameters are outlined in official reports such as those of the National Transport Commission, yet only vehicle numbers and vehicle kilometres are often used in EAs. This understates the real impact on the road system, and other road users, of the proposed maximum of 3 mtpa of road haulage of coal.

Road systems cost under recovery from heavy truck operations represent real dollars to tax payers. So do external costs.

G. The Russel Vale Mine is approximately 14 km from Port Kembla. Based on the above cited 3.88 cents per net tkm estimate, **then for each million tonnes of coal hauled by truck from Russell Vale to Port Kembla, there is a hidden subsidy of $0.54 million.**

This is money that could be recovered to provide for improved road safety, noise mitigation, and improved compliance with consent conditions.

H. It is of note that the Government of Western Australia in a December 2006 submission "Comment on the Discussion Draft of the Productivity Commission's Inquiry into Road and Rail Freight Infrastructure Pricing" gave careful attention to both road pricing and external costs. On page 2 of this report, it is noted, inter alia, that

> *"In WA, there are a number of examples of the movement of bulk material by road where attributable costs are clearly not being covered. There are situations where increases in heavy vehicle charges could have a significant benefit on rail's modal*

share. There are also a number of cases in WA of mineral ore and grain movement where there is direct competition between road and rail services."

State Governments, by a combination of carrots and sticks can assist in moving bulk freight from road to rail. By way of example, in Western Australia Planning and Infrastructure Minister the Hon Alannah MacTiernan MP, noted that on 14 June 2007 that the WA Government will regulate the haulage of woodchips and logs in the South-West to ensure that the movement of timber products by rail destined for the Port of Bunbury is economically viable. To quote from her Media Release of that day *"We want to provide the best balance between road and rail freight, to ensure the impacts of freight on communities are minimized."*

Why not in New South Wales ?

I. There is a case to reduce road haulage of coal to Port Kembla, as opposed to increasing it. Recommendation 7 of the report Air Quality in the Illawarra (1985) by the Illawarra Environment Centre stated *"The state government should recognise the need for an adequate rail transport system for coal in the Illawarra so that the coal loader can operate at its originally planned level of road receival".*

This recommendation is commended.

J. An adequate rail system would now appear to include completion of the Maldon - Port Kembla Railway. Pending completion of this railway, or alternative options such as the use of conveyors, there is a case for limiting mine production.

J. The maintenance of the present road curfew for the haulage of South Bulli/Russell Value Coal is supported. See Appendix B for more re truck curfews.

K. When commenting on conditions imposed by the government of New South Wales on the operation of a new coal loader at Newcastle, the Sydney Morning Herald on 4th September, 1976, noted that these included –

"All existing rail shipments must continue, and all coal from future new mines and increased output from existing mines also go by rail", and

"Road haulage of coal will be 'the subject of tough environmental protection action'."

It is recommended that these two principles be applied to the operation of the NRE No. 1 Mine - Russell Vale.

L. In March 2009 at Wollongong City Council chambers, the NSW Planning and Assessment Commission held a public hearing into Major Projects Application 08_0149 re Metropolitan Coal Project. Many people chose to attend this public hearing.

It is suggested that the option of determination of the current by the Planning and Assessment Commission coupled with the holding of public hearings, should be given close consideration.

Appendix A: Older information re road haulage of coal

i. The 1990 Report of the Wollongong City Council Coal Transportation Task Force noted, inter alia, that the NSW Roads and Traffic Authority had then suggested that an average external cost of pavement wear and tear due to bulk haulage is 3 cents per net tonne kilometre. This road pricing issue in relation to coal had been earlier taken up by Coal Resources Development Committee (1989, Strategic Study of the Southern Coalfield p49) that noted there is a potential to use "hidden costs" of road transport *"... as a form of cross subsidy for coal producers who do not use road transport"*.

ii. The report Air Quality in the Illawarra (1985) by the Illawarra Environment Centre (prepared with the financial assistance of the Federal Department of Environment) had recommendations including # 7 *"The state government should recognise the need for an adequate rail transport system for coal in the Illawarra so that the coal loader can operate at its originally planned level of road receival."*

This still applies. As noted above, the original planned limit was set at 2 mtpa.

iii. The Federal Bureau of Transport Economics in the above cited 1992 report found, inter alia, that train operating costs in terms of cents per net tonne km for Southern NSW coal train operations on existing lines could be appreciably lowered (by over 30 per cent) if the Maldon - Dombarton link was completed and electrified. This conclusion was reached after extensive analysis.

iv. The 1993 report Land Freight Transport Energy Evaluation Main Report-Part One by P Laird and G Adorni-Braccesi for the Energy Research and Development Corporation (ERDC) and undertaken at the University of Wollongong, with the assistance of consultants, found in part that transport of coal to Port Kembla had a **low overall energy efficiency** of 1.34 net tkm per MegaJoule (MJ - which is less than one third of Central Queensland coal train operations). It also had **high land transport operating costs along with high social and environmental costs** (respectively $160 million and $19 million for one year).

The ERDC project did not attempt to give a judgement on what is an appropriate limit, if any, for road haulage of coal. Rather, it showed that under the proposals made in 1992 by the PKCT and BHP, by 1996-97 with coal tonnages to Port Kembla raised to 26 mtpa of coal over the existing rail and road system, and O'Brien's Drift upgraded, the

overall energy efficiency would be 1.47 net tkm per MJ. If, however, the conveyor at O'Brien's Drift was not upgraded, and road haulage of coal remains high, then the overall energy efficiency would remain low.

However, if the Maldon - Domarton rail link was completed and electrified between Glenlee, Tahmoor, Tower (with spur line) and Port Kembla, there would be a reduction of annual operating costs by some 17 per cent, a reduction of social costs of some 23 per cent, a saving of diesel fuel of about 9 million litres of diesel a year, and an increase in average energy efficiency to about 1.6 ntkm/MJ.

v. The Report of the Commissioners of Inquiry (1993) re the Port Kembla Coal Loader was followed by the NSW Minister for Planning making a determination in 1994 granting consent for expansion of the Port Kembla Coal Terminal. In addition, the Minister for Planning also acknowledged three other items. These were:

1. Noise Impacts on residents along Mt. Ousley Road (leading to noise walls).
2. Formation of a Working Party by the NSW Department of Transport into Burragorang Valley Coal Transportation arrangements.
3. BHP giving a commitment to upgrade O'Briens Drift.

v Following approval in 1993 by the Federal Department of Local Government of funding for a $100,000 feasability study for completion of a St Marys/Badgerys Creek - Campbelltown - Maldon-Dombarton rail link, a report was presented to Wollongong City Council in May 1995. This report examined in some detail potential coal and general freight traffic.

The main finding of the Kinhill Engineers report, based on calculated negative Net Present Values, was *"...that the St Mary's - Port Kembla rail link is not economically feasible"* at this time.

In regards to the Maldon - Dombarton link alone, although the NPV's were in one case positive (as was the case with the ERDC report), it was held that completion of the 35 km link was *"not economically feasible and could not be justified on the basis of the coal and freight traffic expected in the foreseeable future."*

The Kinhill Engineers report recommended instead that:

i. payment of Community Service Obligation (CSO) payments to encourage all Clutha coal onto rail.

ii. ***"...establishment of an effective road use charging system whereby road coal freight vehicles pay for the full external costs"*** (emphasis added) such as pavement damage, congestion, noise and environmental costs [NSW moved away from this in 1996 when adopting Australia wide heavy vehicle charges determined by the National Road Transport Commission; and the issue is now receiving ongoing attention by the National Transport Commission and CoAG].

iii. use of planning instruments to maintain the St Marys Glenlee and Maldon - Dombarton rail corridors.

Appendix B re curfews

It is of note that in or near the Melbourne suburb of Footscray in the State of Victoria, a street parallel and just west of Bunbury Road was subject in 2006 (and ongoing) to trucking hour curfews. To quote from the notice:

NIGHT & WEEKEND
TRUCK CURFEW
FRANCIS STREET
8 PM - 6 AM MON - SAT
1 PM SAT - 6 AM MON

The website as of January 2009)
http://www.vicroads.vic.gov.au/Home/HeavyVehicles/RouteInformation/TruckCurfews lists no fewer than seven (7) locations with trucking curfews at these times.

Other restrictions, including 8am to 9.30am, 2.30pm to 4pm, during school days and 7am to 7pm Monday to Friday may also be found on this list.

If one goes to
http://www.vicroads.vic.gov.au/Home/Moreinfoandservices/HeavyVehicles/RouteInformation/TruckCurfews.htm

it is clear that many more main roads in Melbourne are subject to truck curfews. The current website (accessed 3 April 2013) also shows a curfew in a Geelong street 8:30am to 9:30am & 3:30pm to 5:30pm, School days. The Francis Street one above (in Yarraville) still stands with the above hours, whilst Hyde St in Yarraville has, with other streets, 24 hours per day.

.

Attention is also drawn to the restrictions imposed starting in 2005 on coal movements by road from the Curragh Mine to the Stanwell Power Station in Queensland. This traffic has since reverted to rail. The restrictions were outlined in page 15 of a Wesfarmers Curragh And Wagners Transport Pty. Ltd Road Use Management Plan For Haulage Of Coal From Curragh Mine To Stanwell Power Station

"Stanwell shift changes: In accordance with Stanwell directions no haulage is permitted along Power Station road at the following times: • 6.45am - 7.15am; and • 3.45pm - 4.15pm. Curragh Shift Change no curfew but other measures proposed.

Easter: Consistent with the RIA, the following haulage curfew is proposed:
2:00 - 8:00pm Thursday before Easter 8:00am - noon Good Friday and
10:00am - 6:00pm Easter Monday. Other public holidays to be monitored.

Attch E

Project Application No. MP 09_0013

I object to the proposal on the basis of demonstrable and manifest environmental failings:

First and foremost, to a professional chemist (Ph.D. University of Melbourne 1990), the proposition that a mine could be approved on the basis that a huge quantity of methane emission would be wantonly released to the environment is an obscenity. Methane is a more potent greenhouse gas than carbon dioxide by a multiplier of 25! The disregard for modern environmental standards in this proposal is evident throughout, the failure to mitigate this aspect of the proposal by the simple expedient of igniting the gas and reducing the impact by conversion to CO_2 demonstrates that the proponent has no proper concept of managing fossil fuel impacts on our environment. Of course, the burning of the gas would serve as an ever present reminder to the community of the appalling vandalism occurring at the mine, so the proponent's strategy is to indulge in immensely polluting release (colourless and odourless therefor not visible) rather than to mitigate or minimise this harm.

The EIS Table 11.2 states that the expected methane emission factor[1] emitted during coal extraction is 0.7887487. This absurdly precise estimate is almost treble the government guideline value of 0.305 for a "gassy mine". It translates to nearly 2.4Mtpa CO_2 of fugitive emissions per annum ie 6% of Australia's TOTAL fugitive emissions of 41Mtpa.
The EIS table 11.6 states that this operation - producing 3M tonnes pa ROM coal – less than 1% of Australia's total coal production of approximately 400Mtpa - would add 0.43% to Australia's total GHG emissions. If the entire coal industry had the same emissions factor as this proposed mine expansion it would produce over half of Australia's greenhouse gases. The proposed operation would emit approximately 95,000 tonnes methane per annum.[6] This is approximately 2% of the 5Mtpa methane produced by the entire Queensland coal seam gas industry with its 4400 gas wells. Indeed the hypocrisy of the government allowing extraction of Coal Seam Gas on the basis that methane as a valuable resource in one location and then permitting the squandering of this very resource due to the proponent's laziness and/or parsimony would be inexcusable

On this basis alone, the proponent must be rejected on environmental grounds.

Over the time that the proponent has operated this mine, they have repeatedly failed to monitor their activities as required in their development consents. This much expanded proposal has been delayed repeatedly and is piecemeal, outdated in many respects and inadequate to address any proper scrutiny. If submitted as a post-graduate student submission for a higher degree it would fail on many fronts, just as it should fail to persuade planning authorities that it has been prepared by an entity capable of executing even the most minimal of monitoring requirements.

It is inherently environmentally wrong to ship coal across the globe for any purpose. It is always more efficient to carry the ore to the coal due to the approximate tenfold multiplier on ore/product to coal ratio. It is troubling that whereas high-grade coking coal for metallurgical use must be mined carefully to prevent contamination reducing

its value in this context, it is revealed that the coal being shipped from this mine is not being extracted in a manner which maximizes its value. The valuable resource is being degraded. It is anecdotally suggested that this arose most recently because the Longwall machine was incorrectly aligned at the commencement of Longwall 4. The proponent has not demonstrated the capacity to properly exploit the resource and proposes to continue in a similar fashion. The proposal must be rejected and the proponent required to resubmit any future proposal taking proper regard of the fact that this is the 21st century and early 20th century practices are not acceptable.

The undermining of the upland swamps of the Sydney Water Catchment must not be permitted.

The piecemeal and circular arguments about noise walls which may or may not be needed depending on which version of the application is before the department are evidence that the proponent has no intention of ensuring the site noise is not a problem for nearby residents.

Movement of immense quantities of coal by truck from the site through a residential area which predated this proponents acquisition of the mine is unacceptable. That the mine was sold by its previous owners despite existence of large coal reserves is testament to their acknowledgment that this is a serious consideration for future use of the resource.

The intention of the proponent to continue using antiquated technology wherever they can get away with it rather than investing in doing their workto modern standards is evident throughout.

Use of a stockpile as a means of handling coal on this site is unacceptable.

Air quality concerns are not adequately addressed.

The timeframe for responding to this huge proposal is inadequate. It has taken the proponent years to cobble together this document and the community is required to respond in timelines which are incommensurately short. This proposal has been on exhibition across a time when I was out of the country due to academic commitments and did not have time to fully scrutinise the documents. The cursory analysis provided above should be sufficient basis for the authorities to reject this proposal as unsound and inadequate. Until such time as the development proposal is properly framed, internally consistent and meets modern standards, it must be rejected.

Attch F

Some Comments on NRE No.1 Colliery Project Application 09_0013

April 10 2013

From within this submission: Cataract Reservoir supplies water to Sydney - around 4.4 million people. The royalties from the expansion project will provide the equivalent of about $3.15 per person each year for the 18 year life of the project; each will pay far more each year in water rates.

The number of mining jobs is small in the context of the Illawarra regional labour force of 196,200 and employed work force of 131,454 (as of November 2012; http://lmip.gov.au). Mines have closed in the past without devastating the regional economy.

Can the DoPI and the PAC be confident that the residents of Sydney would be willing to accept a risk of a compromise to their water supply, and to the biodiversity and environment of its catchment area, for $3.15 per person a year in royalties and 409 mining jobs? Would the next generation?

The company's perspective is clear, Part D of the EA advises that any costs arising from subsidence are expected to be minimal as "*the mine is mostly located under the Sydney water catchment which has limited economic assets that could be damaged by subsidence*".

The Special Areas provide water to Greater Sydney and the Illawarra - more than 4.7 million people. As mentioned, royalties from the Southern Coalfields amount to around $141 million - in a good year for coal prices. That's equivalent to about $30 per person each year for the next twenty years. Or about 57 cents a week - not even the price of a bottle of water.

How can the DoPI and the PAC determine that the value of the coal beneath the Special Areas is greater than the inter-generational value of the catchment's water quality and quantity, ecosystems, communities, species and outstanding biodiversity? Does it really make sense to put these assets at risk for such small returns?

Note: As advised in the cover letter, this submission is to replace a preliminary version submitted on April 5.
Note: Time constraints have precluded adequate proof reading.

SOWCA is an alliance of the following community groups and organisations:

NATIONAL PARKS ASSOCIATION OF NSW
protecting nature through community action

LOCK THE GATE

RIVERS SOS

Rivers SOS

TOTAL ENVIRONMENT CENTRE

Botany Bay and Catchment Alliance

Georges River Environmental Alliance

Illawarra Escarpment Network

Otford Protection Society

Hawkesbury Environment Network Incorporated HEN

Hawkesbury Environment Network

nisa

Northern Illawarra Sustainability Alliance

IRRM
ILLAWARRA RESIDENTS FOR RESPONSIBLE MINING

Illawarra Residents for Responsible Mining

STOP CSG! Sutherland

STOP CSG SYDNEY

Stop CSG Sydney

Sutherland Shire Environment Centre

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Comments on the NRE No.1 Colliery Project Application 09_0013

General Comments

The OEH points out in their 2012 comments on Gujarat's modification proposal for their Preliminary Works project (MP 10_0046), that the NSW Government has invested heavily in time, resources and money to review mining proposals in the Southern Coalfields. This includes a number of major assessments such as:

- Dendrobium Commission of Inquiry
- Southern Coalfield Inquiry
- Metropolitan Colliery PAC assessment
- Bulli Seam Operations PAC assessment

In each case significant deficiencies have been identified in the information provided by Industry to Government on which to base decisions that balance the environmental, social and economic benefits and costs of these proposals. In each case**, the assessments have reflected an increased recognition of community concerns for the impacts of mining on the sensitive and highly valued environment of the Special Areas.**

The 2010 PAC Panel report for the Bulli Seam Operations (BSO) proposal defines the current benchmark for acceptable mining practice in the Special Areas. Community awareness has heightened since 2010.

The 2009 PAC Panel report on the Metropolitan Coal Project proposal makes the following comments on studies of subsidence impacts on swamps:

> "*These programs are funded by the Proponent, designed by the Proponent's consultants, and the information is usually collected, analysed and interpreted by the Proponent's consultants. Whilst there is Government agency oversight of this process and some scrutiny of reports, it does not amount to a rigorously designed and executed set of studies that could be published in the scientific literature or provide the basis for a meta analysis of the relationship between longwall mining and upland swamps*."

That is, studies funded by mining companies cannot be regarded as robust and independent assessments.

Commenting on proponent funded peer reviews, the PAC Panel for the BSO proposal makes the following recommendation:

> *"15.3.4. Recommendation*
> *The Panel recommends that the Department look at this issue with a view to determining whether independent selection and briefing of reviewers should be the norm, even if the cost were borne by the Proponent. As it currently stands the system appears to have little credibility*."

That is, the direct coupling between consultants and project proponents may induces bias in favour of the proponent. There is clearly a conflict of interest and a potential to corrupt the assessment process.

The Department has instead proposed accreditation of consultants. While a small step forward, this fails to address the core problem of the direct relationship between the proponent and the consultant. It's puzzling that the Department has not addressed the problem as recommended by the PAC. **Consultants should be selected at random from a pool with, for example, funding for costs provided along the lines of the Mine Subsidence Board**.

RECOMMENDATION 1: Accredited environmental impact assessment consultants for mining projects should be selected at random from a pool, with funds for assessment costs provided along the lines of the Mine Subsidence Board.

Inadequate Public Exhibition Period

The publication exhibition period allowed six weeks for members of the public to read, digest and comment upon more than 2000 pages of proposal documentation. The Department allowed only three weeks for the 1000 or so pages of the 2012 modification proposal of the Preliminary Works project. In effect, the same amount of time was allowed for comments to be made on each proposal - in spite of comments of concern from the public about the inadequacy of the public exhibition period. This disregard for public consultation by the Department of Planning and Infrastructure (DoPI) is underscored by the four years it's taken for Gujarat NRE to submit its proposal (a brief account is given below). The DoPI's evident disregard for public submissions is further highlighted by the tolerance it has shown towards the many compliance failures and deadlines missed by Gujarat NRE.

Net Benefit - how much for the Special Areas?

The PAC's approvals have been swayed by concerns of job losses should Gujarat operations be interrupted. The same consideration has effect in considering whether or not swamps, creeks or other surface features should be undermined. The EA indicates that 297 staff are employed at No. 4 shaft and 287 are employed at Russel Vale. These figures are dated and incorrect however, with only caretaker staff now employed at No. 4 shaft. The EA indicates 409 jobs, though no details are provided for this estimate and it may also be dated. **The number of mining jobs is small in the context of the Illawarra regional labour force of 196,200 and employed work force of 131,454 (as of November 2012;** http://lmip.gov.au**).** Mines have closed in the past without devastating the regional economy.

Part D provides an assessment of financial benefits that would appear not to have been independently verified. The Commonwealth taxes are substantial and are presumably primarily company tax. Assuming that those who would not be employed, should the mine close, would not be a source of payroll tax assumes they would not subsequently gain alternative employment. This seems an unreasonably pessimistic assumption.

Capital expenditure details are not provided, but it would seem a reasonable assumption that a significant component will be for equipment manufactured overseas.

The NSW levies provide partial compensation for services or impacts, are modest and most will likely be deductible. The project is predicted to deliver $250 million in State royalties over its 18 year life, from a total of 46 million tonnes of coal. This would be equivalent to an average of about $13.9 million each year from about 2.6 million tonnes of saleable coal each year.

Cataract Reservoir supplies water to Sydney - around 4.4 million people. **The royalties from the expansion project will provide the equivalent of about $3.15 per person each year for the 18 year life of the project; each will pay far more each year in water rates**. Can the DoPI and the PAC be confident that the residents of Sydney would be willing to accept a risk of a compromise to their water supply and to the biodiversity and environment of its catchment area for $13.9 million a year in royalties and 409 jobs? Would the next generation?

The Wongawilli seam is classed as a deep seam and would presumably then attract royalties of 6.2%. The price of coal on which the royalty estimate is made is not given. As a relevant aside, BHP-Billiton estimated royalty revenues totalling $521 million from 47Mt of ROM coal over a 9 year project period - an average of about $58 million from 5.2 Mt of ROM coal each year. Either Gujarat have underestimated the royalties or BHP-B have overestimated their royalty payments.

Currently annual State revenue is about $60,000 million, **so the $13.9 million royalties from the project each year would contribute approximately 0.02% of annual State revenues**.

A 2010 Auditor General's review shows that in 2008-9 coal provided $1,200 million in royalties (a peak coal price year) to the NSW Government, with $141 million (11%) of that being from the Southern Coalfields. **State Government revenues in 2008-9 were just under $50,000 million, with the Southern Coalfield then contributing 0.26% of that revenue**. The percentage may have declined with the recent fall of coal prices.

The SCA expects 91% of the Special Areas to be undermined over the next 20 years or so. The swamps will be lost along with other habitats and species, water contamination and sediment arising from the leaching of metal ions will continue to accumulate and the quality of surface water will be further reduced on mixing with ground water brought to the surface as the abandoned mines eventually fill. The legacy of coal mining in the Special Areas will be a broken and degraded landscape, and lost biodiversity of international standing.

The Special Areas provide water to Greater Sydney and the Illawarra - more than 4.7 million people. As mentioned, royalties from the Southern Coalfields amount to around $141 million - in a good year for coal prices. That's equivalent to about $30 per person each year for the next twenty years. Or about 57 cents a week - not even the price of a bottle of water.

How can the DoPI and the PAC determine that the value of the coal beneath the Special Areas is greater than the inter-generational value of the catchments water quality and quantity, ecosystems, communities, species and outstanding biodiversity? **Does it really make sense to put these assets at risk for such small returns?**

The company's perspective is clear, Part D of the EA advises that any costs arising from subsidence are expected to be minimal as "*the mine is mostly located under the Sydney water catchment which has limited economic assets that could be damaged by subsidence*"

Reflecting this, the longwalls plans were revised at some point such that plans to mine beneath Mt Ousley Rd were abandoned to avoid the risk of damage. Likewise, mining under swamps and creeks should not proceed. While a road may be repaired, swamps and creeks cannot.

The Precautionary Principle

The 2010 BSO PAC Panel report provides a detailed account of the Precautionary Principle and its application in a mining context. The importance of the need to consider the Precautionary Principle has recently been reaffirmed in the Land and Environment Court hearing of SHCAG Pty Ltd v Minister for Planning and Infrastructure and Boral Cement Limited. The current proposal from Gujarat fails to adequately apply the Precautionary Principle.

The PAC Panel advises that where there is a "*significant threat and a substantial level of uncertainty the principle requires the application of a significant degree of precaution, with the safety margin falling on the side of the environment*"

Unreliable Subsidence Predictions

To emphasize the uncertainty in predicting subsidence as a consequence of triple seam mining, Pells Consulting list some examples of inaccurate prediction for single seam mining subsidence, in Annex N 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

The dramatic damage to the Waratah Rivulet provides another example of significantly underestimated subsidence. The longwalls used at Metropolitan Colliery are very similar to those of Area 2, being 163m wide with 55m pillars. Modelling for the longwalls impacts was undertaken by MSEC using the Incremental Profile Method (IPM) that Pells otherwise describes as "excellent". The Waratah Rivulet suffered dramatic and unpredicted impacts from subsidence of approximately 1.3 metres and upsidence of approximately 150 mm.

The difficulties and risks in predicting single seam mining are compounded in attempting to predict subsidence from multi-seam mining.

Seedsman admit that SDPS is inferior to IPM and its clear **SDPS does not provide a sound basis for the assessment of subsidence risk and impacts from multiple seam mining**. As Seedsman readily admit, the use of four variables and one constant in the commercial software package SDPS is unable to reliably predict subsidence above three mined seams.

Further underscoring the uncertainty of subsidence prediction, the PAC observes in its 2009 report on the Metropolitan Coal Project 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*."

Prior to the extraction of longwall 4 (LW4), Seedsman predicted maximum vertical subsidence of 0.9 +/- 0.1 metres, this being concentrated in a small region on the centre of the longwall's surface footprint (see Fig. 1). The subsidence measured above LW4 in June 2012, when the longwall was still in progress, was 1.1 metre; in October, a month after completion, it was 1.38 metres. Subsidence over LW4 will continue as subsequent longwalls progress. That is, **the extent of the subsidence over longwall 4 is not yet known**. **Based on the October 2012 figures, the Seedsman's modelling has underestimated the subsidence of this individual longwall by 0.48 metres, or 34.8%.**

Before the LW4 extraction, Seedsman's modelling predicted subsidence of 1.1 metres for LW5 and 1.2 metres overall for Area 2. **The subsidence over LW4 has already exceeded the maximum Seedsman predicted for all of Area 2**.

The longwalls 4 layout was curtailed to prevent impacts to Mt Ousley Rd. **Nonetheless longwall 4 did cause cracking on Mt Ousley Rd, even though it was some 300 metres away and outside the 35 degree angle of draw boundary**. Though the cracking was minor, this further demonstrates the uncertainty of subsidence prediction and the uncertainty of triple seam mining.

In a July 2012 Seedsman reported a revision of the predicted maximum subsidence for LW4 to 1.2 metres, with parameters adjusted in accordance with the observed subsidence to October 2012. This revision was made publically available as part of the EA documentation for the current project proposal and is used to provide new 'visualisations' of the SPDS modelling for remaining longwalls in the Wongawilli East domain.

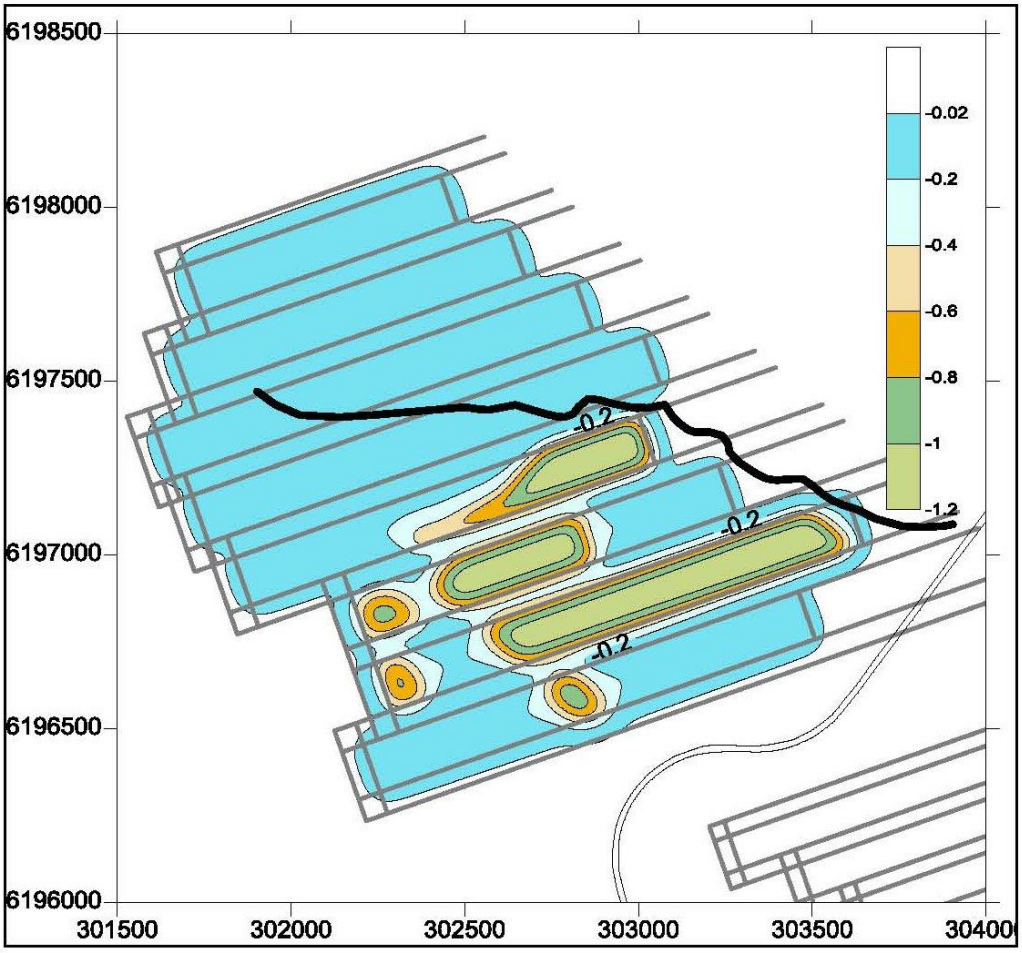

Figure 1. Seedsman pre-longwall 4 predictions for subsidence in Area 2. Taken from Appendix A of the EA for the 2012 modification proposal for the Preliminary Works Project. Subsidence over longwall 4 was predicted to be 0.9 +/-1 0.1 metres. As of October 2012, subsidence was 1.38 metres, in addition to that of the seams above, and will likely increase.

Longwalls that follow the first of a series behave differently to the first and will reactivate the subsidence of preceding longwalls. **There is no reason to assume that the post-LW4 revised SPDS modelling will be any more accurate than the pre-mining modelling for LW4 in predicting the extent of vertical subsidence arising from the new longwalls.**

Likewise there is no reason to conclude that that the extent of subsidence with increasing distance from the longwall can be reliably modelled by SPDS, with or without the data from LW4. That is, **SPDS cannot be assumed to reliably predict the lateral extent of the subsidence footprint defined by a 20mm vertical subsidence contour**. Further, the assumption that the footprint of subsequent longwalls will match that of LW4 is not justified.

RECOMMENDATION 2: Given the uncertainty and the consequences, and consideration of the Precautionary Principle, the 20mm subsidence impact zone must be assumed to be no closer than defined by the 35 degree angle of draw boundary accepted for the Southern Coalfields.

The subsidence impact zone for the proposed longwalls would then be as follows:

- **Area 1** comprises three, 105m wide panels with 40m wide pillars with a depth of cover to the Wongawilli seam of approximately 237m to 255m. The 35 degree angle of draw defined subsidence impact zone on the surface would extend up to **180 metres** from the longwalls.

- **Area 2** comprises eight panels 145 to 150m wide with 60m wide pillars with a depth of cover to the Wongawilli seam of approximately 267m to 320m. The 35 degree angle of draw defined subsidence impact zone on the surface would extend up to **220 metres** from the longwalls.

- **Area 3** comprises five panels with panels 390m wide and separated by 65m and depth of cover to the Wongawilli Seam ranges from approximately 455m to 510m. The 35 degree angle of draw defined subsidence impact zone on the surface would extend up to **360 metres** from the longwalls.

- **Area 4** comprises two panels each 155m wide with 65m pillars with depth of cover to the Wongawilli seam ranges from approximately 460 to 495m. The 35 degree angle of draw defined subsidence impact zone on the surface would extend up to **350 metres** from the longwalls.

Seedsman have revised their modelling for Area 2 to better reflect the observed LW4 subsidence. It is however inappropriate to model the subsidence of a series of longwalls on the basis of the behaviour of the first of that series. That is, **there are no grounds for confidence in revised modelling based on LW4.**

The current cumulative subsidence above LW4 reaches up to 3.7 metres, comprised of about 1m from mining the Bulli Seam, 1.4m from mining in the Balgownie Seam and 1.3m from mining in the Wongawilli Seam. The total subsidence in Area 3 may exceed 4m.

Currently it would appear that only 2D monitoring is being undertaken by Gujarat. A commitment to 3D monitoring to assess far field impacts is needed.

The EA misleadingly suggests the subsidence methodology has been peer reviewed, with statements such as "*the subsidence prediction methodology has been peer reviewed by MSEC and SCT*". This is an indirect reference to meetings of mining company consultants to agree on their judgement of likely subsidence impact risks. Notwithstanding the PAC's caution with respect to peer reviews, this does in constitute a peer review of subsidence prediction methodology as envisaged by the Southern Coalfields Inquiry. The closest the EA gets to assessing the subsidence methodology is the admission that SDPS is inadequate.

The Height of the 'Free Draining' Collapsed Zone

Seedsman's subsidence modelling does not assess the likely height of the 'free-draining' collapsed-zone (caved zone and fractured zone) above the mined seams. There is a brief discussion in GeoTerra's ground water impact modelling report for Gujarat (Annex P), which states "*In the model, it was assumed that the hydraulic conductivity after extraction of the proposed longwalls could enable free drainage within the goaf, with vertical connective fracturing to the mid / Upper Bulgo Sandstone*" **This assumption is made irrespective of the longwall width.**

Appendix C of the 2008 Southern Coalfields Inquiry (SCI) report.[1] discusses the height of the 'free-draining' collapsed-zone (caved zone and fractured zone) above mined coal seams. The discussion refers to detailed investigations by Byrnes into groundwater hydrology undertaken by South Bulli Colliery (now NRE No. 1) for longwall mining under Cataract Reservoir in the mid to late 1990s.[1] Byrnes identified an upper bound in concluding that the collapsed-zone did not extend beyond 1.7 times the panel width.

The SCI report notes that MSEC (2007) undertook a review of literature regarding the likely heights of the caved, fractured and constrained zones and found that:

- generally, the height of the caved zone has been indicated to fall within the range of 1.5 to 14 times the extraction height, with the majority of cases in the range of 5 to 10 times the extraction height;
- the height of the fractured zone has been reported to lie within the range of 10 to 105 times the extracted height; and
- the height to the base of the constrained zone has also been reported in terms of extraction width and found to vary between 0.16 and 1.4 times this width.

As consultants to BHP-Billiton (BHP-B) for the 2010 Bulli Seam Operations (BSO) project proposal, MSEC state "*The height that mining related fractures may form has been established from monitoring and computational studies as being 1 – 1.5 times the panel width. However, the creation of these fractures alone does not necessarily imply that a direct hydraulic connection exists over this zone".* **A direct connection however, isn't the necessary requirement for a significant increase in vertical water flow; vertical flow will increase the further disconnected fracturing extends towards the surface.**

The 2010 BSO project proposed 310 metre wide longwalls for BHP-B's Appin-West Cliff mine. In assessing the MSEC modelling, the PAC Panel concludes:

- *When the MSEC model is applied to conditions similar to the calibration data, it could produce reasonable predictions of the height of fracturing even though it has mechanistic shortcomings for that purpose, with the maximum height being 1.37 times panel width;*
- *Based on other studies including Gale (2008), a potentially worst case outcome appears to be fracturing extending up to a height of 1.5 times panel width but with increasing disconnection of fracturing;*

- *It is unlikely that the highly connected and freely drainable fractured zone will extend upwards into and beyond the Bald Hill Claystone for longwall panel widths up to 310 m. This is suggested by a range of field measurements and observations, the most recent being extensometer measurements conducted over LW32 (310 m width) at West Cliff Area 541 where more than 90% of fracture displacements seem to have occurred at or below the claystone;*

With respect to the last point, the average depth of cover for the domains of the BSO project ranged from 400 m to 600 m, so the Bald Hill Claystone layer would in general have been just beyond the fracture 'horizon' expected at 1 to 1.5 times the panel width. The Panel comments "*In the opinion of the Panel there is substantial uncertainty about the magnitude of the subsidence-related impacts, particularly in areas where the depth of cover is approaching the predicted height of fracturing (i.e. 385 m) for 310 m longwalls*." That is, **the predicted height of fracturing is 1.25 times the panel width**.

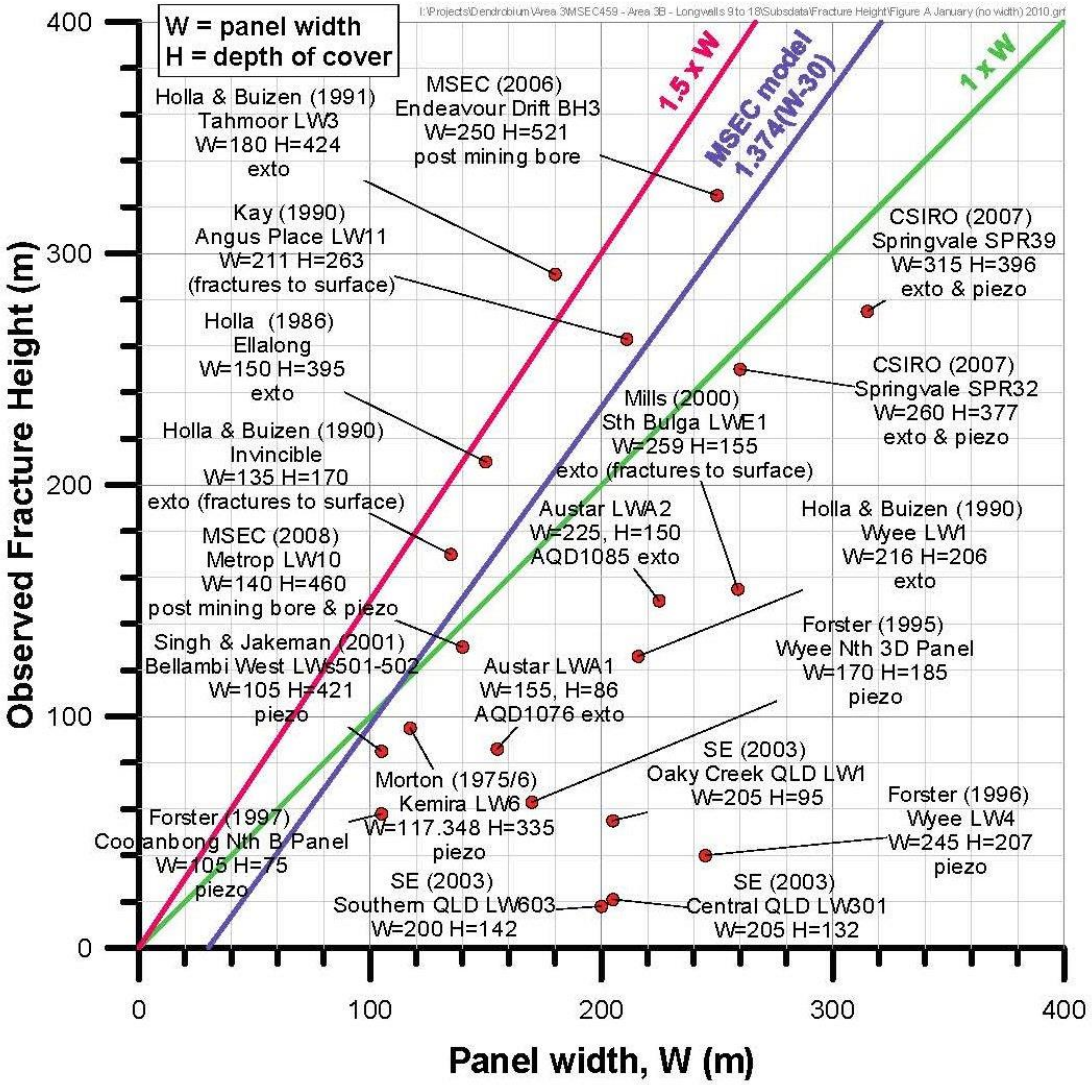

Figure 2. MSEC[2] depiction of fracture zone height with respect to panel width from Attachment A to the BHP-Billiton Dendrobium Area 3B SMP documentation.

The expectation is then that, depending on the local geology, **the collapsed zone may extend between 1 to 1.5 times the longwall panel width**. MSEC reaffirm[this assessment in their 2012

subsidence prediction report for BHP-B's Subsidence Management Plan for Dendrobium Area 3B (see Fig. 2). This is also reflected in Coffey Geotechnic's groundwater modelling for BHP-B's Subsidence Management Plan for Dendrobium Area 3B (e.g. Figs. 3 and 4). Both MSEC[2] and Coffey[3] indicate that in some locations the collapsed zone above the 310 metre wide longwalls will reach into the Bald Hill Claystone and may extend to the surface. MSEC conservatively comment "*The depth of cover directly above the proposed longwalls varies between 310 metres and 450 metres and, therefore, it is possible that the fractured zone could extend up to the surface, where the depths of cover are the shallowest*."

GeoTerra indicate the 501 to 509 panels in the Wonga West domain were 110 metres wide and that interconnected fracturing extended to 153 metres, with increased permeability extending into the middle Bulgo of the Bulgo sandstone as a result of delamination. These narrow longwalls also lowered the Hawkesbury Sandstone water level by some 10 to 15 metres. GeoTerra report that a piezometer (P5) installed in the Bulgo Sandstone, 226 metres below the surface, showed a drop of 15 to 20 metres following the passage of the longwall below. The piezometer shows a response to rain that GeoTerra explain as a response to "*recharge and infiltration into the cracked overburden*". That is, **the response is consistent with increased permeability reaching the surface as a result of subsidence**.

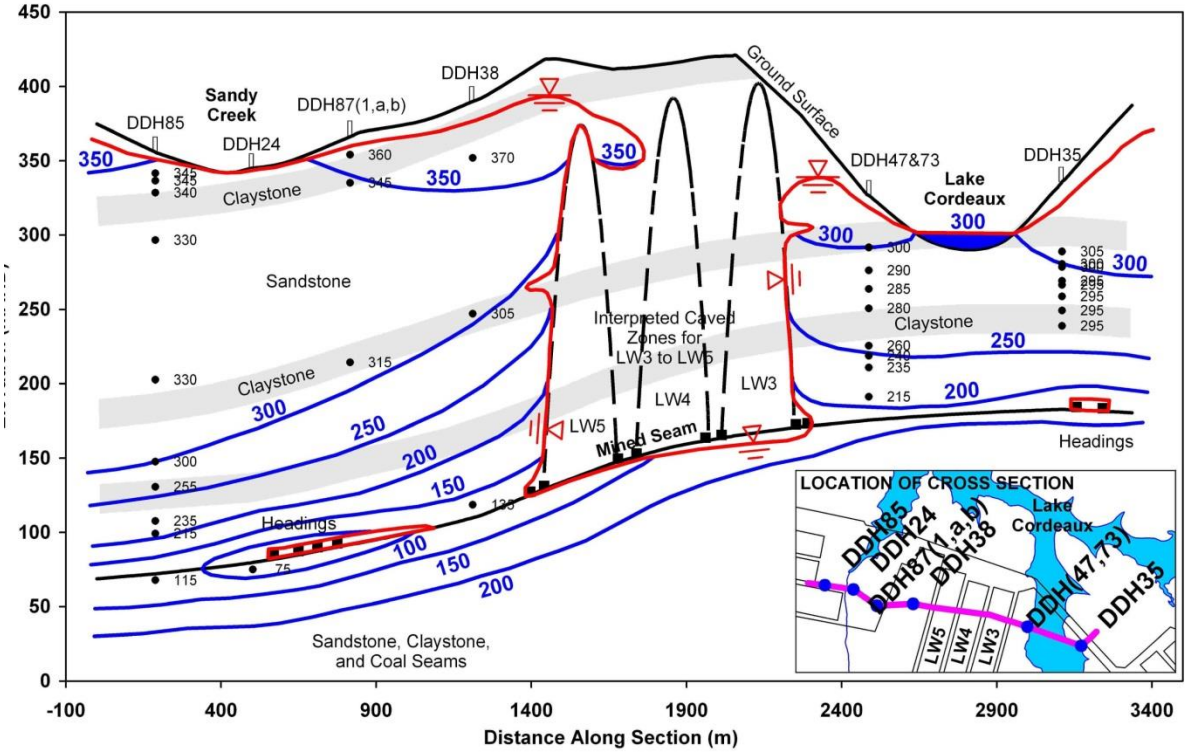

Figure 3. Coffey depiction of collapsed zone above Dendrobium Longwalls 3, 4 and 5; from Attachment C to the BHP-Billiton Dendrobium Area 3B SMP documentation.[3]

GeoTerra also report that 80 to 86 metre longwalls with 67 metre pillars in the Bulli seam in Wonga West caused a pronounced response in the lower Bulgo Sandstone and a slower response in the upper Bulgo Sandstone and Bald Hill Claystone. That is, longwalls less than 100 metres wide may still effect near surface aquifers.

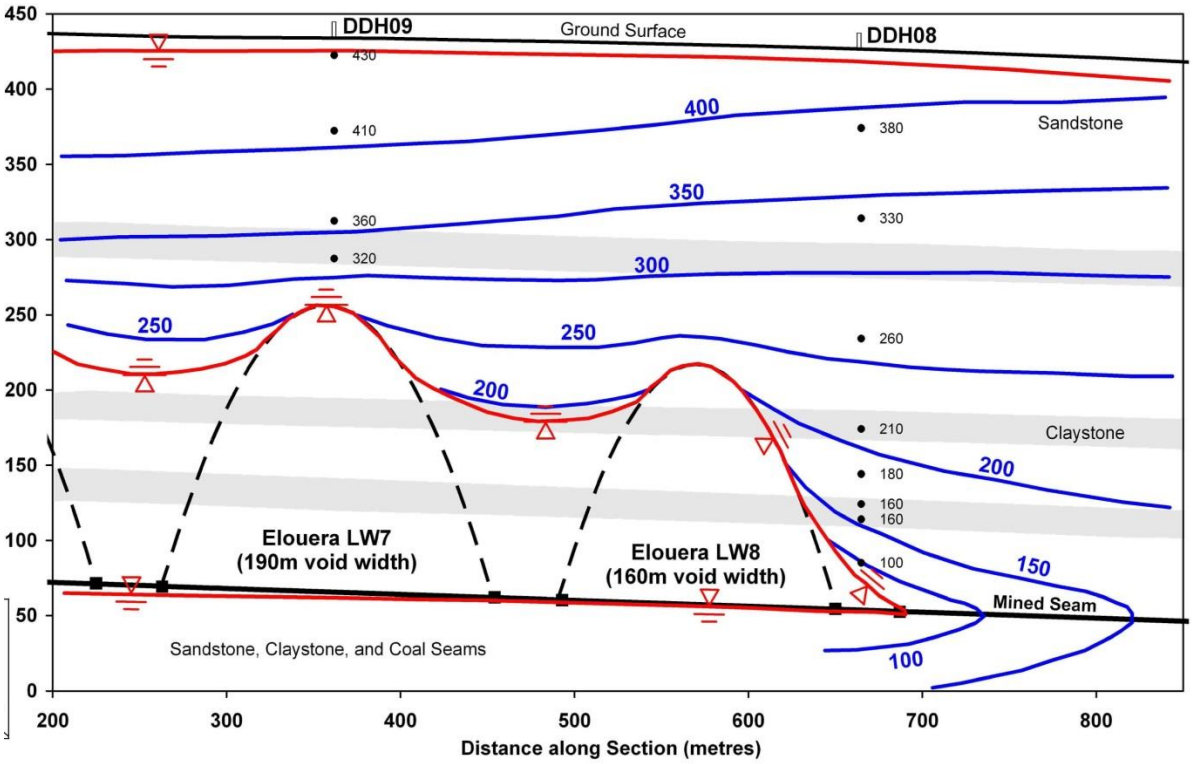

Figure 4. Coffey depiction of collapsed zone above Elouera Longwalls 7 and 8; from Attachment C to the BHP-Billiton Dendrobium Area 3B SMP documentation.[3]

The proposed 390 metre longwalls may reasonably be expected to have a collapsed-zone of 390 to 585 metres above the mined seam, where the depth of cover ranges from 455m to 510m. Even if the collapsed-zone extends no further than the Bald Hill Claystone, this has significant implications for groundwater flows and water loss from the local area catchment.

A continuously connected fracture network is not a necessary condition for a significant increase in vertical water flow. The higher the 'disconnected' fracture zone rises, the greater the overall permeability of the subsurface strata.

The piezometer data for the Wong East domain, given by GeoTerra in Annex P, suggests fracture penetration into the Hawkesbury sandstone from past mining.

The monitoring data reported by GeoTerra point to the prudence of the Reynolds recommendation that panel widths should not exceed one third of the cover depth and pillar widths should not be less than one fifth of the cover depth. The Reynolds recommendations are often described by mining companies as conservative, however it's important to note that they were made in the context of bord and pillar and partial pillar operations.[4]

RECOMMENDATION 3: Given the sensitivity of the Special Areas single seam longwall and pillar widths should be within the limits of the Reynolds recommendations. Multi-seam layouts should be more conservative.

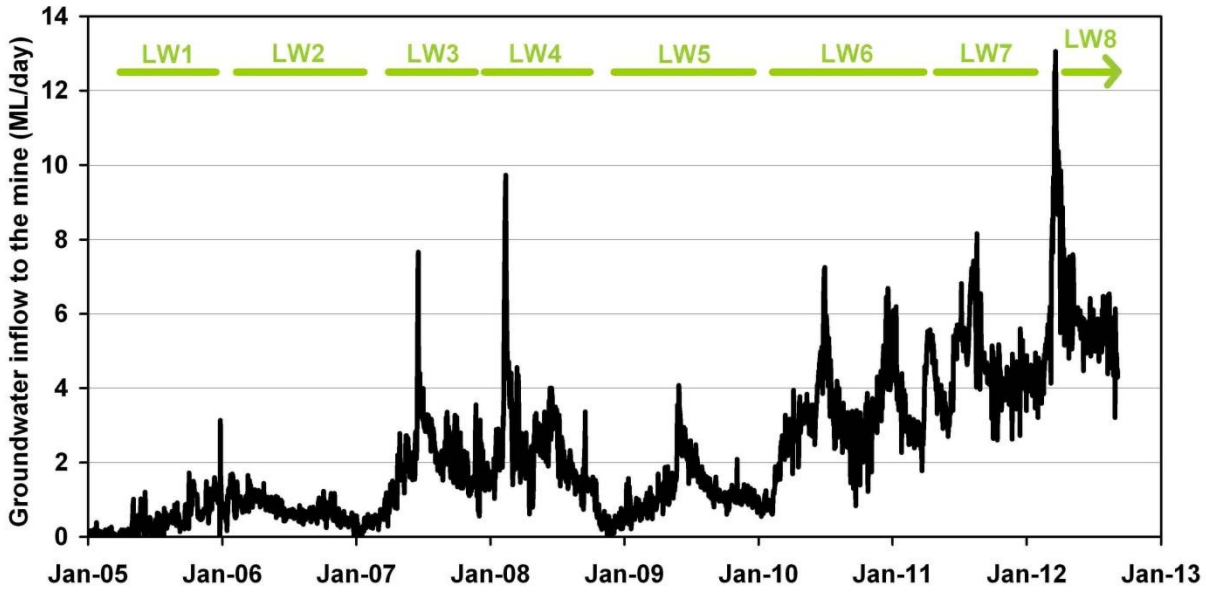

Figure 5. Record of water inflow to the Dendrobium Mine to June 2012 (from Attachment C of the Dendrobium Area 3B SMP documentation).

Of relevance, the Dendrobium mine has a history of high water inflows (Figure 5), with notably large inflows into Area 2 in June 2007 (peaking at 7.5 Ml/day) and February 2008 (peaking at 9.5 ML/day), and into Area 3A in June 2010 (7.2 ML/day) and December 2010 (6.7 ML/day).[5] **A particularly large inflow event occurred in Area 3A in 2012, peaking at 13 ML/day and this would appear to be associated with the 305 metre wide longwall 8**.

Spanning Capacity of the Bulgo Sandstone

Seedsman notes that the Bulgo Sandstone is known to be a spanning unit over Bulli Seam longwall panels with widths of at least 200m to 250m. Seedsman does not however assess the capacity of the overburden to span 390 metre longwalls. **Failure of the overburden would bring the collapsed-zone to the surface.**

Given the uncertainty and the significance of the consequences, the Precautionary Principle advises that the impact assessment must assume that the overburden will not be able to span a 390 metre wide longwall void.

RECOMMENDATION 4: Given the uncertainty and the consequences, 390 metre longwalls must not be permitted in the Special Areas. Prudence dictates that the longwalls should be no wider than recommended by the Reynolds Inquiry.

In their response on behalf of Gujarat to subsidence related comments on Gujarat's 2012 Preliminary Works Modification (MP 10_0046) application, SCT Operations discuss the subsidence over LW4 and conclude that

> "*the initial Bulli Seam mining and the subsequent Balgownie Seam mining have reduced the bridging characteristics of the overburden strata*".[6]

That is, the subsidence data for longwall 4 in Area 2 of the NRE1 mine suggests the bridging capacity of the overburden has been compromised by the mining in the seams above the Wongawilli seam. Perhaps this is not surprising, with approximately 2.5, 1.2 and 3 metres of coal having been removed from the Bulli, Balgownie and Wongawilli seams respectively **- a total extraction height of some 6.7 metres.** If there were sufficient cover, the fractured zone might extend 700 metres above the longwall.

Implications of Reduced Bridging Capacity of the Overburden

In commenting on the subsidence airing from LW4, SCT state[6]:

> "*A characteristic of the reduced bridging capacity of the overburden strata and the increased subsidence that is observed above multi-seam mining operations such as Longwall 4 is increased disturbance of the subsided overburden strata and increased potential for overall increased hydraulic conductivity between the surface and the mining horizons. Such increased hydraulic conductivity is not necessary a significant issue if the main source of recharge is rainfall because, in general, only a very small percentage of total rainfall is lost into mining induced fractures in a typical bushland environment.*
>
> *However, this increased vertical hydraulic conductivity may be an issue if the recharge source is a reservoir, a major creek or river, or a swamp whose flora and fauna are sensitive to the natural balance between inflow from rainfall or surface runoff and losses to the bedrock so that longer term storage of water within the swamp is affected*."

The validity of the assumption that the redirection of rainfall runoff into cracks will be comparatively minor depends on the extent of fracturing from the mine to the surface. Seedsman suggest that the subsidence over LW4 is "*more related to vertical block collapse than to simple bending of the overburden*". **That is, the overburden has effectively failed**; **failure of the overburden across Area 2 could result in significant runoff, stream and swamp losses.**

The Bald Hill Claystone

Consultants to companies mining in the Southern Coalfield invariably invoke the Bald Hill Claystone (BHC) as an aquitard, or even aquiclude, that prevents loss of surface waters - either towards the mine or into the broader regional groundwater system. For instance, SCT state: "*The Bald Hill Claystone is recognised and accepted to have relatively low matrix permeability compared to other stratigraphic units because of its fine grained nature*." GeoTerra state in Annex P that following subsidence the "*Bald Hill Claystone is interpreted to maintain its semi confining status*".

Yet GeoTerra also sate in the same report (Annex P) that:

> "*As shown in Table 6, the average packer test hydraulic conductivity of the Hawkesbury Sandstone varies from 0.0131m/day in the upper section to 0.0003m/day in the mid section and 0.0008m/day in the lower horizon. The Bald Hill Claystone averages 0.0298m/day whilst the upper Bulgo Sandstone averages 0.0066m/day and the mid Bulgo Sandstone averages 0.0004m/day*."

Clearly the BHC does not act as an aquitard, relative to the adjacent strata - its average hydraulic conductivity is in fact higher than that of the Hawkesbury Sandstone above and the Bulgo Sandstone below. According to GeoTerra's Table 6, the BHC conductivity ranges from 0.00005 to 0.12960 m/day, while the Hawkesbury Sandstone ranges from 0.000079 to 0.05875 m/day and the Bulgo Sandstone from 0.00002 to 0.04061 m/day.

These overlapping ranges are consistent with data published by Pells in 2012[7]. Pells provides an insightful account of the origins of the myth of the Bald Hill Claystone aquiclude/aquitard and further observes that, as the tabulated conductivities suggest, the historical notion of confined aquifers is a simplistic convenience not matched by the reality of a continuum of varying conductivities. 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. Senior technical staff at the Metropolitan Colliery comment that the BHC above the mine is coarse in character and would not act as a significant aquitard.

The evidence advises that the Bald Hill Claystone provides no more resistance to vertical water flow than adjacent strata.

Protecting the Swamps

It is commendable that the proponents state

> "*NRE has provided an undertaking that the mining operations will be modified as required through adaptive management measures informed through monitoring of actual subsidence impacts, to reduce negative outcomes. An adaptive management plan will be developed to use the monitoring program to detect the need for adjustment to the mining operations so that the*

subsidence predictions are not exceeded and subsidence impacts creating a risk of negative environmental consequences do not occur in upland swamps."

However, in contributing to Gujarat's response to submissions on the 2012 proposal to add longwalls 4 and 5 and gate-roads 6,7 and 8 to the NRE1 Preliminary Works Project, consultants SCT state[6]:

"*It should be recognised that any impacts to swamps are unlikely to become apparent until well after mining is complete and well after there is any capacity for the mine to make any significant change to the mining process.* ***The concept of a Trigger Action Response Plan (TARP) as a method of protecting swamps is not credible*** *because many of the impacts are likely to be long term and difficult to detect without extended monitoring*." Bold text emphasis added here.

This statement is consistent with the 2010 PAC Panel report for the BSO proposal and with the long standing position of the OEH (formerly DECC/DECWW). For instance, the BSO PAC Panel observes " *information has been emerging to suggest that a number of upland swamps in the Southern Coalfield are being impacted by subsidence-induced changes to hydrology.*"

While Gujarat make a commitment to an effective adaptive management programme, they provide only general indications of its character - no details are provided. NRE state

"*Recommendations provided by Biosis (2012a) in their assessment of upland swamps will be considered in development of the adaptive management plan and future mining plans*."

The lack of details precludes any judgement of viability. **It would be highly irresponsible to approve the current proposal in the absence of the necessary detail.** There is no reason such detail could not be provided as part of the EA documentation; the provision of such information should be an EA requirement.

Gujarat evidently accept the advice of the OEH in stating "*Drawdown of water levels is one of the first parameters that can be detected following the fracture of rock strata (OEH 2012). Negative environmental outcomes have occurred if there is a statistically significant decrease in water levels within the swamp that is directly attributable to subsidence.*" This observation would not however provide a basis for a TARP that was both effective and affordable in preventing negative environmental outcomes.

It would take several weeks, perhaps months, to establish and reach agreement that a logged decrease in water levels was statistically significant and directly attributable to subsidence. Mining companies are very reluctant to concede that piezometer changes are anything other than weather related and/or temporary**. <u>By the time there is agreement, with the longwall progressing in the interim, the impacted swamp will have suffered further harm.</u>**

SCT correctly advise "*a high level of protection is provided if the swamps are not directly mined under. Higher protection is provided with increased distance between the swamp and the edge of the nearest longwall panel.*"

RECOMMENDATION 6: The subsidence impact zone must not be allowed within reach of a swamp identified as being of special significance and accordingly required to be protected from negative environmental consequences. The subsidence impact zone should not be allowed within reach of any swamp.

In effect, the current proposal offers no realistic protection for the swamps. **The EA states the following with respect to swamps of special significance:**

> "*Commitments to ongoing monitoring and the preparation and implementation of adaptive management measures for these swamps have been made to reduce as far as economically viable the impacts on these swamps*." Emphasis added here.

Clearly this is not in accord with the expectations of the BSO PAC Panel, SCA and the OEH - and is not acceptable to the concerned community. **The swamps are too important to sacrifice to coal**.

The EA provides no insight into the adaptive management strategy that NRE assure will protect the swamps. Some insight is however provided by the Subsidence Management Plan (SMP) for LW5 in Area 2.

Gujarat's Subsidence Management Plan (SMP) level 3, or 'red-alert', TARP swamp hydrology trigger for LW5 is as follows; "*Piezometer becomes, or stays, dry where it has not done so previously*"; and the response is

(i) Immediately inform:
- *DRE Director Environmental Sustainability and Land Use;*
- *Principal Subsidence Engineer – DRE*

(ii) Within 1 week of trigger exceedance being noted instigate investigation including:
- *Engaging a hydrogeologist to investigate and report on the cause of trigger exceedances where the cause may not be directly related to lack of rainfall recharge;*
- *Investigation of possible mitigation measures in consultation with SCA / NOW*
- *Prepare and implement a site mitigation/action plan in consultation with SCA / NOW if necessary*

(iii) Within 1 week of investigation provide investigation results to:
- *SCA*
- *DP & I*
- *OEH; and*
- *DRE*

(iv) Report in End of Panel Report, AEMR & Annual Review as required.

The level 3 trigger does not warn that unacceptable changes in hydrology have begun - it advises that serious damage has already been inflicted. A piezometer falling to 'dryness' signals cracking in the base of the swamp - an impact likely detectable by visual inspection. An example of a piezometer that "*becomes, or stays, dry where it has not done so previously*" is located in

Swamp 1 over longwall 5 of BHP-Billiton's Dendrobium Mine. Figure 6 shows the piezometer trace and Figure 7 and 8 show the associated swamp damage.

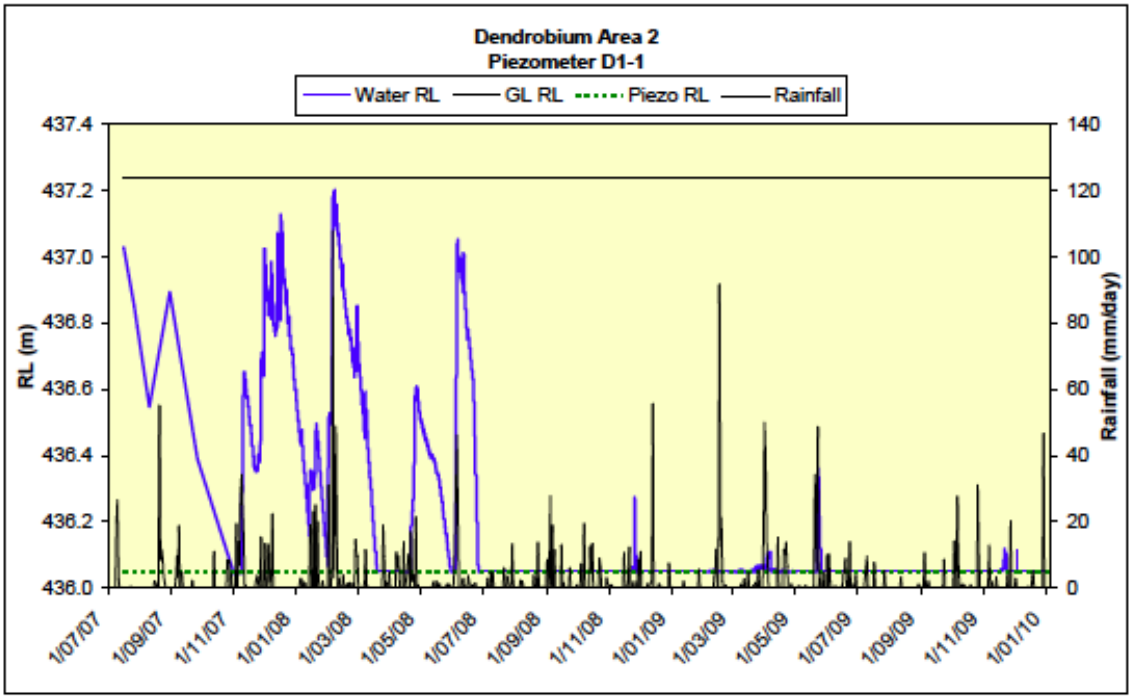

Figure 6. Shallow groundwater piezometer (blue line) readings before during and after mining of longwall 5 in Dendrobium Area 2. The piezometer stops responding to rain as a result of mining, with the water level dropping**.**

There is a **very significant difference** between the level 3 hydrology trigger for LW5 and the determination that a negative environmental outcome has occurred when *there is a significant decrease in water levels within the swamp that is directly attributable to subsidence*." The LW5 level 3 trigger does not, in any sense, provide a warning that would allow a timely response that would prevent negative outcomes. **That is, the LW5 trigger is inadequate.**

As noted above, a more sensitive trigger based on detecting a "*statistically significant decrease in water levels within the swamp that is directly attributable to subsidence*" would also fail to protect the swamp from negative outcomes. Determining that the cause is "*directly attributable to subsidence*" or "*directly related to lack of rainfall recharge*" would take time and may take much more time to be agreed by all of the stakeholders. **Mining companies are very reluctant to accept that subsidence damage is the cause of falling piezometer levels**.

Preparing and implementing mitigation measures in accord with the TARP response will take more time. It's not then hard to envisage that it would take at least two weeks before a response plan is agreed and put into action - and all the while the longwall will be steadily progressing and compounding the harm that has already been detected. Of significance, there is no commitment to halt the longwall machine. **The LW5 response is ineffective.**

Figure 7. Cracked swamp sediment (left) and bedrock (right) in Dendrobium Area 2

Figure 8. Desiccated swamp vegetation in Dendrobium Area 2

While the LW5 TARP is inconsistent with the need to ensure no more than negligible harm, it is consistent with Gujarat's otherwise vague commitment to develop and implement adaptive management measures for swamps of special significance:

> "*Commitments to ongoing monitoring and the preparation and implementation of adaptive management measures for these swamps have been made to reduce as far as economically viable the impacts on these swamps*."

That is, the LW5 SMP will not hinder operations or otherwise impact on the projects economic viability.

While the attempt to identify of swamps of special significance at risk of negative environmental consequences is commendable, the assignment of risk level by Biosis is inadequately justified,

puzzling and, given the accumulating evidence, optimistic. For instance the risk level is ascribed as low for CCUS4, CCUS10 and LCUS8, yet **the criteria set by the BSO PAC Panel are significantly exceeded for these swamps.** The exceedance is greater for CCUS4 than CCUS1, yet CCUS4 is assessed as being at moderate risk while CCUS1 is determined to be at significant risk. The puzzling assessment may reflect an over-emphasis on the modelled flow accumulation changes relative to the consequences of subsurface hydrology changes (fracturing, strata permeability changes).

Further, **it's not clear if the subsidence tilts being used by Biosis to assess modelled flow accumulation changes are accumulated tilts (proposed and past mining) or the tilts predicted by Seedsman for the current proposal.**

In commenting on the risk to all of the swamp in the project area, GeoTerra state**:**

> *Subsidence could affect shallow swamp aquifer water levels due to increased secondary porosity and / or underlying strata fracture permeability through the development of subsidence cracks over the proposed workings. If cracking occurs, the change to swamp water level variability through subsidence depressurisation is not anticipated to be greater than the current variability resulting from climatic influences.*
>
> *Hydraulically connected vertical cracking to the deeper strata is not predicted due to maintenance of the Bald Hill Claystone semi confining layer and the presence of a "constrained" vertical flow zone in the upper Bulgo Sandstone, therefore the swamps and creeks are not predicted to lose water by free drainage into the proposed workings.*

The blanket assumption that cracking will not result in water level variability above climatic influences is at best optimistic. The experience at Dendrobium and Metropolitan mines suggests the assumption is unrealistic.

As discussed above, GeoTerra's data and that of Pells and others show that the Bald Hill Claystone is no more confining than the adjacent strata. **Diverted water will be able to join deeper regional flows via fractures, joints and increased bed-separation**. Water may then be lost from the local catchment, whether or not some reaches the mine.

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Approving mining beneath swamps amounts to a determination that they are not worth protecting, relative to the perceived value of the coal beneath. It trivialises the recognition of the swamps as Endangered Ecological Communities and their pending recognition under the EPBC Act.

Approving longwall mining under swamps, with or without assurances of adaptive management, places a higher value on the coal beneath than on the environmental and water catchment significance of the swamps - without attempting to objectively quantify the value of the swamps, now and into the future, to the communities of Greater Sydney, the Illawarra and Southern Higjlands.

Harming the Swamps

The EA relays mixed messages about the impact of coal mining on swamps, on the one had evidently accepting the perspective of the OEH, while on the other equivocating about the impact of mining.

Biosis comment (Annex Q):

> "*Although hypothesised to be a contributing factor, subsidence has not been determined to be a sole reason for any observed impacts to upland swamps; however subsidence effects are believed to be a contributing factor*."

Though implicit in their carefully worded summary, what Biosis don't explicitly state is that the **cracking and draining of a swamp alone, in the absence of other factors, may reasonably be expected to be capable of resulting in change of species composition and distribution, desiccation, erosion and, through any of these impacts, the loss of the swamp**. Fire or the onset of drought would accelerate that demise - or might ensure that mining damage that might otherwise have been tolerated, becomes terminal. The converse is of course also true. **We have no control (other than reducing greenhouse gas emissions) over fire and drought, but we can protect the swamps from mining impacts**.

Biosis strain credibility in their equivocating account (Annex Q) of Swamp 1 above the Dendrobium workings:

> "*At Swamp 1 in Dendrobium Area 2 a reduction if groundwater levels in piezometers located in proximity to Swamp 1 coincides with observations of surface fracturing within this upland swamp (Biosis 2011). Despite these observable subsidence effects, no erosion of Swamp 1 has been observed. Changes in flora species composition within Swamp 1 appears to be changing at a faster rate than control swamps, with species richness and diversity declining since this area was undermined (Biosis 2012). However, this decline in species richness and diversity is to be expected following fire, with obligate seeding shrubs out-competing other species and curtailing their growth (Keith et al. 2006*)."

Sidestepping the significant observation that compositional change in Swamp 1 is occurring at an unusually rapid rate, Biosis imply that the large bushfires that occurred across the area at the end of 2001 are primarily responsible for the compositional and biodiversity changes. Both fire and mining will likely have contributed to the demise of Swamp 1. Given the sharp collapse of the water level and the nature of the cracking, mining impacts would seem most likely to have been the key driver of change. This judgement would be consistent with the observation that "*species composition within Swamp 1 appears to be changing at a faster rate than control swamps*". **The swamps of the Woronora Plateau have suffered and recovered from repeated fire events for thousands of years; mining is a recent imposition that can deprive them of water for decades** - until the abandoned mine below fills.

Biosis state that they have "*identified through literature review of locations beyond the Study Area boundaries, that impacts to a very small number of upland swamps, located above mining areas, have been observed*." Biosis conclude "*To date there is little evidence as to whether this drying of upland swamps results in changes to the size of, or species composition within,*

upland swamps. Additional data is required to determine the impacts of reductions in groundwater on upland swamps."

Biosis implicitly suggest that mining under swamps be allowed to proceed until there is a sufficient accumulation of visible evidence of unacceptable harm to swamps. The OEH however recommends that negative environmental outcomes for all swamps need to be defined in terms of a statistically significant decrease in water levels within the swamp that is directly attributable to subsidence. This recommendation sensibly recognises that highly water dependent communities will be stressed by a decline in available water. The recommendation is a prudent response to limited evidence reflecting the absence of a long term, independent and comprehensive study of swamps.

The BSO PAC Panel notes two problems with concluding that a lack of evidence of visible impacts reflects minimal or no risk of harm; (i) *no long term robust scientific information showing before and after mining outcomes for swamps*; (ii) "*most of the swamps that have been undermined previously were undermined by either bord and pillar techniques or much narrower longwall panels*"

The Panel also comments "*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.*"

That there have been no long term, robust, independent, peer reviewed studies to examine the relationship between longwall mining and swamp health and character does not justify an assumption that undermining may cause no more than incidental harm, if at all. On the contrary, **the scientific uncertainty, the importance of the swamps and the Precautionary Principle require the assumption that mining under swamps will cause more than negligible impacts** - as suggested by SCT Operations.

Prof. Pells points out in Annex N of the current EA, Sections 5 and 6 of the BSO PAC Panel's report provide a detailed and, currently, definitive account of the mechanisms and nature of subsidence impacts on swamps - which the PAC panel describes as fragile. Oddly, Biosis make no reference to the BSO account of swamp impact mechanisms. Under the heading 'Other Reports' Biosis provide a brief mention of some of the observed impacts discussed in the 2010 BSO report.

The visible evidence of harm may not be as sparse as Biosis and other consultants suggest. Seedsman state in Annex M that:

> *"Contiguous networks of intact upland swamps, including the Wollandoola Creek swamp cluster are present in both the Wongawilli East and Wongawilli West areas. The swamps were noted to be in good condition in the upper regions of Wollandoola Creek and Lizard Creek, and were observed to provide habitat for a number of threatened species listed under the TSC Act.* ***In some parts of the study area sections of swamps were observed to be very***

***dry, with evidence of scouring and erosion in some areas as a result of decreased water availability for reasons that were not determined*.”** Emphasis added here.

Unfortunately Seedsman don’t identify the swamps and their observations don’t seem to be reflected in the Biosis report provided as Annex Q. In considering mine impacts, it may be significant that Biosis report that the swamps in the Wonga West area are generally larger and more spatially continuous, whilst those in the Wonga East area are generally drier, shallower and less spatially continuous.

No explanation is offered, but GeoTerra observe in Annex P that “*The average hydraulic conductivity for the upper Hawkesbury Sandstone pump out tests (excluding NRE-E) is 0.023m/day. The elevated conductivity in NRE E of 2.07m/day could result from subsidence cracking of the surficial sandstone*”. **That is, the hydraulic conductivity of the Hawkesbury Sandstone in Wonga East is an order of magnitude greater than in Wonga West - apparently because of subsidence effects.**

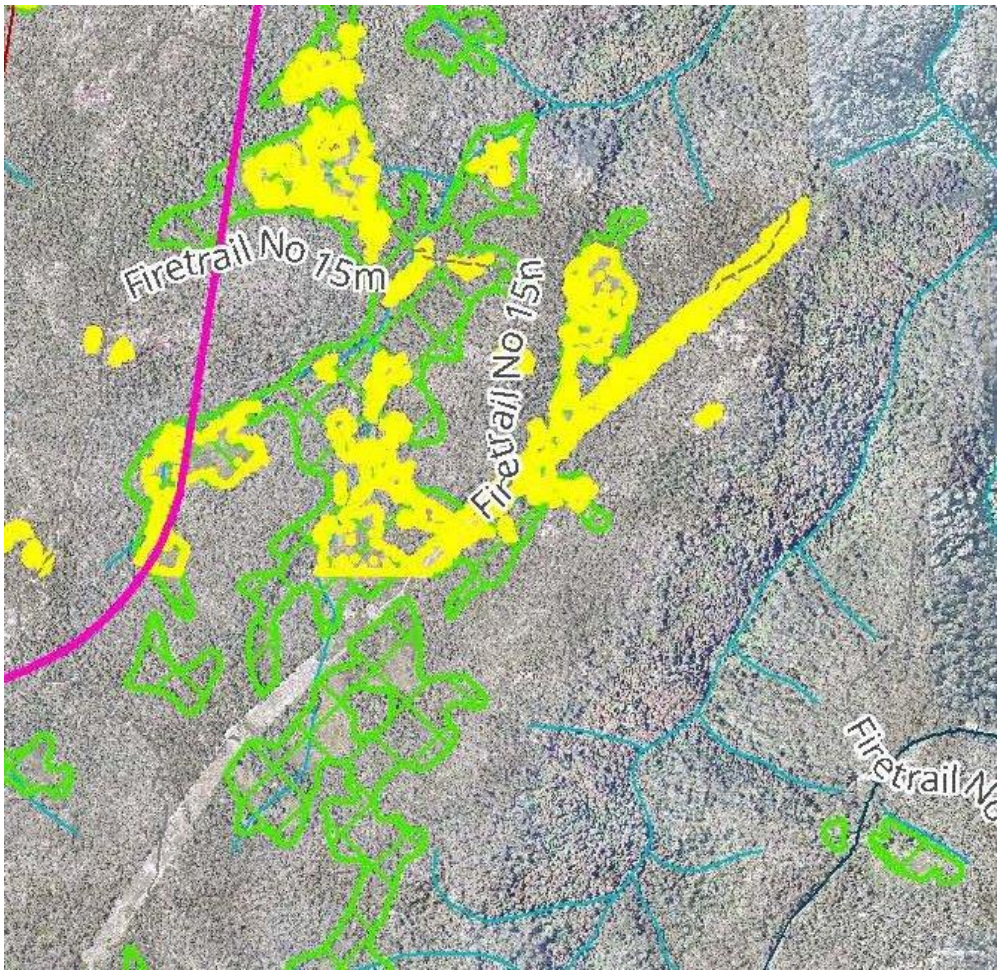

Figure 9. Swamp boundary differences as mapped by NPWS in 2003 (green) and Biosis (yellow) for Gujarat NRE in 2012. Elouera mine workings are below the swamps. The differences may reflect the different mapping techniques and climate effects, but may also reflect real boundary changes in response to the mine below.

A comparison of Table 4 and Table 5 in Annex Q shows that the area of the swamps in Wonga East as mapped by NPWS in 2003 is 68.04 ha, in contrast to 49.06 ha mapped by Biosis in 2012. This may reflect the different mapping techniques and climate effects, but may also **reflect real boundary changes in response to the mine below**. As Fig. 9 shows, there are significant boundary differences for the swamps over the Elouera workings.

The 2010 BSO PAC Panel report includes Swamp 1 in Dendrobium Area 2 as an example of an impacted swamp. 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*." In its submissions on the BSO proposal the then DECCW identified Dendrobium Area 3A as a reference area to monitor before approving further undermining of swamps. **The hydrology of the reference swamps identified by OEH has been impacted by subsidence. It's time to stop undermining swamps**

More recently the progress of longwall 8 has triggered a level 2 TARP alert for swamp 15b[8], which has been cracked. Longwall 8 has a width of 305 metres.

The 2012 Metropolitan annual environmental review (AEMR) indicates subsidence induced hydrology changes to swamps 16, 17 and 20 in the Woronora Special Area arising from the recently completed longwalls 20 and 21. The longwalls used at Metropolitan Colliery were 163m wide with 55m pillars - only slightly wider than the 145 -150 metre longwalls and 60 metre pillars of NRE 1 Area 2. Importantly, the depth of cover for the Metropolitan Colliery longwalls is 400 to 560m - much greater than the 267m to 320m for Area 2.

That is, **the recent impacts to swamps at the Metropolitan Colliery have occurred with similar longwall parameters to those of Area 2 - but with a much greater depth of cover than that over the swamps of Area 2**. The 455m to 510m depth of cover in Area 3 is similar to that over the Metropolitan Colliery longwalls - but the longwalls of Area 3 are some 2.5 times wider. If approved, the proposed mining will have adverse impacts on the swamps above.

RECOMMENDATION 7: An estimate be made of the number of the swamps in the Special Areas that have been undermined, by longwall and bord and pillar methods, and are to be undermined by current approvals. This should then be expressed as a percentage of the total number of swamps and as a percentage of swamp areas.

Undermining the swamps over the proposed longwalls will add to the long list of swamps set to be undermined by the other mines in the Special Areas. Gujarat are required to provide an assessment of cumulative impacts - this should include a tally of the swamps in the Special Areas that have

been undermined, and are to be undermined by current approvals. This should then be expressed as a percentage of the total number of swamps and as a percentage of swamp areas.

The Not So Special Swamps

The classification of swamps as being of special significance undervalues the 'other' swamps, the 'ordinary' swamps, that by number make up 84% of the swamps. This second class status essentially guarantees they will not be protected from harm should a mine propose a longwall beneath them.

The PAC states for the other swamps that "*a presumption of protection from significant negative environmental consequences will exist for all other swamps unless the Proponent can demonstrate for an individual swamp that costs of avoidance would be prohibitive and mitigation or remediation options are not reasonable or feasible. Under circumstances where the decision is to allow significant negative environmental consequences to occur and remediation is not feasible offsets may be considered appropriate*." **Mining companies will inevitably argue the costs of avoidance risk mine closure. 'Like for like' swamp offsets in the Special Areas are not realistic and financial compensation does not replace the lost swamp.**

While the other swamps make up 84% of the total number of swamps, they make up only 34% of the area covered by swamps - but can we really afford to sacrifice 34% of these valuable natural assets? Do we know how many have already been undermined?

Protecting the Streams - Water Quantity

The BSO PAC Panel advises;

> "*All those streams located within Special Areas declared under the Sydney Water Catchment Management Act are significant for their water supply function.*"

They PAC also makes it clear that they are vitally important for their dependent biota. Reflecting long standing concerns, the BSO PAC Panel states;

> "*The Panel is of the view that it is no longer a viable proposition for mining to cause more than negligible damage to pristine or near-pristine waterways in drinking water catchments or where these waterways are elements of significant conservation areas or significant river systems*".

As Pells points out in Annex N, the current proposal will result in more than negligible harm to the watercourses within the project area.

No confidence can be held for statements such as "*Only stream reaches within the predicted Wongawilli seam workings 20mm subsidence zone were considered in this assessment*." The subsidence modelling is unable to reliably predict the 20 mm subsidence impact boundary, consequently the modelling cannot be used to judge the limit of subsidence impacts on

watercourses. In the absence of other information, the boundary should be no closer than that of the 35 degree angle of draw. The boundary should be extended for multi-seam mining.

The impact boundary provides no more than a guide. Significant damage was caused to Wongawilli Creek when BHP-Billiton owned the Elouera colliery, with cracks occurring up to 500m from the mining activity.[9] Impacts included loss of flow and altered water chemistry, including high levels of dissolved zinc.

Figure 10. 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

Similar impacts arising from the Elouera colliery occurred at Native Dog Creek, with subsidence in the order of a metre and fracturing occurring up to 500m from the mining activity, loss of flow from the creek and altered water chemistry with toxic levels of aluminium, zinc and nickel detected along with lowered pH at one site.[9]

The 2010 PAC Panel report for the BSO proposal relates mining induced diversions with complete loss of flow over stream lengths over many hundreds of metres have occurred in Lizard Creek and over shorter distances along a 2 km stretch in the upper reaches of the Waratah Rivulet, and in numerous other channels (e.g. Figs 10 and 11). The Waratah Rivulet suffered dramatic impacts that have been well documented and reported in the media.

Mining companies and their consultants contend that any diverted surface water will re-emerge downstream. As OEH point out, this assumption has not been scientifically established or supported by any scientific evidence in any mining company report or peer reviewed study. **Given the uncertainty and the consequences, the Precautionary Principle requires the converse assumption - that diverted water will not return to the surface**.

The SCA believes water is being lost from the Woronora Reservoir catchment as a result of subsidence impacts to the Waratah Rivulet, with water is being diverted to groundwater flows that take it away from the local catchment and into regional flows.

Figure 11. Subsidence related loss of flow in Wongawilli Creek.

RECOMMENDATION 8: Given scientific uncertainty and significant consequence, the Precautionary Principle requires the assumption that diverted stream water will not re-emerge downstream.

This applies to streams of all orders**.** The Planning Assessment Commission expects that for any third order or larger stream of special significance status, or otherwise qualifying for special protection, an assessment is undertaken of all of its tributaries to determine whether subsidence-induced impacts could compromise the protection status of the stream itself. The EA does not provide any evidence or basis for its assumption that undermining the 1st and 2nd order tributaries will not significantly reduce the volume or quality of the water they supply. **Any water lost from 1st and 2nd order streams is water lost from the dependent higher order streams and inconsistent with the requirement of no more than negligible harm. Ferruginous seeps in 1st and 2nd order tributaries will lower the quality of the streams they supply.**

The use of 390 metre longwalls would be reckless, with the free-draining zone reaching up towards the surface and possibly reaching the surface, risking water loss from the Cataract catchment. The further the free-draining and fracture zone extends above the mine, the more quickly will water be drawn away from the surface. Water may then be lost from the local catchment to the mine or to the broader regional groundwater flows. This drainage mechanism has greatest impact below bodies of water - swamps, streams and reservoirs.

The Planning Assessment Commission has made it clear that Lizard Creek and Cataract Creek merit the same level as protection as water courses identified as being of special significance:

> "*Furthermore, despite not achieving special significance status because of previous impacts, Cataract Creek and Lizard Creek exhibit highly significant values and the consequences of further impact makes them worthy of protection*."

That is, Lizard Creek and Cataract Creek must not be subject to more than negligible impacts, where negligible means "*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*". The same requirement applies to Wallandoola Creek. The current proposal will expose these creeks to more than negligible damage.

The main channel and tributaries of Lizard Creek and Wallandoola Creek are at grave risk of serious impacts from 390 metre longwalls proposed for Area 3.

RECOMMEDATION 9: The layout of the Area 3 longwalls must be revised in accord with the Reynolds Recommendations. The main channels Lizard Creek and Wallandoola Creek must be kept outside of the subsidence impact boundary defined by the 35 degree angle of draw. The tributaries Lizard Creek and Wallandoola Creek should be kept outside of the subsidence impact boundary defined by the 35 degree angle of draw.

Given the acknowledged inadequacy of SDPS, the uncertainty of double seam mining and the unprecedented 390 metre longwall width, there is no reasonable basis for confidence in the statement in Part C that:

> "*The proposed extraction in Wonga West is predicted to result in up to an additional 0.25m subsidence in the main channel of Lizard Creek and up to an additional 0.5m subsidence in the main channel of Wallandoola Creek. This will result in a cumulative subsidence effect with the subsidence caused through the previous Bulli workings, however no site specific, cumulative effect on the creek bed and bank stability or pool levels is anticipated due to the additional subsidence*."

Likewise, the following is at best a statement of optimistic hope lacking a credible scientific basis:

> "*A potential cumulative effect of subsidence on the stream flow from 1st and 2nd order streams, which may or may not also contain upland swamps, is possible if the subsurface*

transfer of the tributary / swamp water outflows does not report back into the lower reach of the tributary before it discharges into the main 3rd order channel of Lizard or Wallandoola Creek. However, it is anticipated that the upper tributaries / swamps will discharge the stream flow back into the 3rd order flow system of the main creeks at or near their confluence with the main stream, so that negligible volumes of tributary / swamp outflow will be 'lost' to the system."

The EA states that "*The Longwall Panels are positioned so that vertical subsidence under 3rd order or higher stream channels will be restricted to less than 250mm, except over Longwall Panel A2 LW8*." **The modelling is unable to reliably predict the vertical subsidence. The EA does not explain the basis for assuming that limiting subsidence to 250mm will ensure negligible impacts to watercourses - strains and cracks accumulate in unpredictable ways**. Peer reviews undertaken by consultants funded by the proponent do not constitute independent reviews. Negligible impact can only be ensured by not allowing mining beneath or near the feature to be protected.

Prof. Pells states in Annex N:

"*We are of the view that groundwater modelling cannot provide definitive answers as to impacts on creeks and swamps. We consider that the modelling completed to date for the NRE No 1 project does not properly consider the likely ranges of permeability and storativity parameters, but notwithstanding this limitation, does indicate that the existing workings, and the proposed mining will have negative impacts on the groundwater regime. We conclude that there will be additional negative impacts on Lizard and Wallandoola Creeks, and the tributaries of Lizard Creek that are located above the proposed Wongawilli longwalls. We also conclude that there will be negative impacts to the length of Cataract Creek that has probably already been impacted by prior mining*."

Negligible impact can only be ensured by not allowing mining beneath the feature that is to be protected.

Protecting the Streams - Water Quality

Commenting on ferruginous seeps GeoTerra state:

"*It should be noted that many Hawkesbury Sandstone aquifers in the Southern Coalfield already have significant iron hydroxide levels, and that ferruginous seeps can also be observed in previously un-subsided catchment areas*."

No references are provided, however the SCA reports that "*Dissolved iron is generally present in Hawkesbury Sandstone groundwater at variable concentrations. Water is normally suitable for raw water supply for medium to large-scale potable use*."[10] Figure 12 shows the impact of subsidence induced ferruginous seeps into the badly damaged Waratah Rivulet. The water is green with dissolved iron and other metals and the stream is lined with iron oxide deposits, and iron and manganese oxidising bacterial mats. The Waratah Rivulet is an important watercourse. In periods of

good rainfall the Rivulet supplies 30% of the inflow to Woronora Reservoir and up to 50% in dry periods.

Commenting in Annex C on ferruginous seeps in the proposed project area, the EA advises that "*due to the lack of pre-mining data, no comment can be made as to whether the seepage is mining induced or not* ". The BSO PAC Panel however attributes ferruginous seeps in O'Hares Creek and the Woronora River, some kilometres from mining activity, to mining induced far-field movements. That is, **ferruginous seeps are initiated by a disturbance and on the Woronora Plateau the trigger is most likely to be mining activity**. These seeps can persist for decades and do not constitute a negligible impact.

SCT Operations comment:

> "*There appears from the iron staining evident in the water flowing in Cataract Creek to be some ongoing impacts from previous mining that was undertaken some 30-40 years ago, so the post mining recovery appears to be relatively slow*."

The BSO PAC Panel comments in its 2010 report that:

> "*the consequences of iron staining, opacity, bacterial mats and deterioration of water quality has potentially significant consequences for hydrologic values (water quality), ecological values, environmental quality and amenity value*".

And

> "*The Panel considers there is strong evidence that growth of bacterial mats, opacity and the deterioration in water quality accompany iron staining and that these impacts may persist for long periods*."

The SCA advises[11] that manganese dissolution and precipitation accompanies iron dissolution and that:

> "*During rainfall events, acidic rain water and surface run-off re-mobilises iron and manganese oxides and hydroxides, eroding them from the streambed and dissolving them from floating mats and returning these metals again to the aquatic system to cause further pollution downstream.*"

And

> "*During high water stages when turbulent flow prevails, iron mats are washed from pools and meanders where they have been immobile during low flow conditions, resulting in further contamination as they are dissolved in acidic conditions.*"

The SCA also advises in the 2010 BSO PAC report that "*Experimental studies in the Waratah Rivulet showed that rainwater is able to completely remove iron/manganese precipitates (Figure 6) increasing their concentration during and after rainfall event. The dissolved phases of iron and manganese are transported into Woronora storage causing significant increasing loading of these metals*" Insoluble oxides and hydroxides transported into water storages add to their sediment load and reducing oxygen. The SCA estimates that between February 2002 and August 2009 some 15 and 4 tonnes of iron and manganese respectively were added into the Woronora Reservoir from the shattered Waratah Rivulet.[11] It's likely that more than 5 tonnes of iron and 1.5 tonnes of

manganese will have since been added to the reservoir, together with other contaminants that include barium and strontium.

Figure 12. October 2012 photograph of the impact of subsidence induced 'springs' in the Waratah Rivulet. The water is green with dissolved iron and other metals and the stream is lined with iron oxide deposits, and iron and manganese oxidising bacterial mats. In periods of good rainfall the Rivulet supplies 30% of the inflow to Woronora Reservoir and up to 50% in dry periods.

The proposed mining will exacerbate existing seeps and create new seeps, adding to the catchment burden.

Remediation - a False Promise

There are currently no independently agreed methods for remediating broken watercourses or swamps. Peabody has spent very substantial sums of money injecting polyurethane resin (PUR) in two locations in the very badly damaged Waratah Rivulet. The work has yet to meet the SCA's performance measures and the BSO PAC Panel expressed concerns the injected curtain would divert water. The method can only be used in ideal locations and its medium to long term durability in a subsidence zone is unknown.

Swamp remediation is likewise problematic. PUR, or some other 'grout', injection can only be undertaken in ideal locations and access would require clearing of swamp vegetation. Propagating the promise of remediation, the Draft Statement of Commitments (Part D of the EA) states "*Should*

the standing water level or groundwater quality be unacceptably affected due to subsidence, methods to ameliorate the situation until the water level or water quality recovers will be investigated." In reality, once a swamp is damaged, there is no prospect of returning it to its pre-mining state, or some reasonable approximation of that state.

Project approvals made with commitments to remediation are nonetheless in fact approving the loss or damage of the threatened asset. It is misleading or delusional hubris to suggest otherwise.

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*." **Damage to swamps and watercourses inescapably fails the Neutral or Beneficial Effect (NorBE) on water test, in contravention of the EP&A Act.** Cumulative impacts cannot be ignored

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..

Public Scrutiny of Management Plans

In general, the public are not afforded an opportunity to review and comment on management plans, such as Subsidence Management Plans (SMPs) and Environmental Assessments (EAs) rarely provide any insight into their likely content. In its hasty 2012 approval of Gujarat's 'modification' to add triple seam mining to its Preliminary Works Project (MP 10_0046) the PAC Panel comments on the lack of community consultation with respect to SMPs: "*consultation must be meaningful and the Department must take full account of it in its assessment and approval of the subsequent plans. Concern has been expressed to the Commission on multiple occasions (including this one) that neither proponents nor the Department necessarily meet expectations in this area*". As discussed below the SMP for one of the MP 10_0046 longwalls is inadequate in providing no effective swamp protection.

Access to Environmental Performance Data

Mining companies collect environmental performance data as a condition of approval and will provide tabulated or graphical summaries of that data in end of panel reports or annual reports. The data is collected in the public interest and all of the data should be made available to the public- not just the summaries provided by the company. Doing so would entail little additional effort or cost.

Any consultants reports obtained by company in advance or as part of the development of an EA should also be made available. For instance, a number of documents referred to in this EA do not seem to be publically available' e.g. Biosis 2011.

Mine layout maps for the lease, past and present should be made readily available in electronic and hardcopy form.

Attempting to Form an Alternative Community Consultation Framework

Some three months into their three year Preliminary Works project approval period and three months before the due date, Gujarat sought 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 put their proposed alternative to the DoPI 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 - this was not the case.

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 documentation for the Preliminary Works modification proposal (MP 10_0046 Mod 1) 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.

In describing the consultation process led by Twyfords in Part A of the current EA, Gujarat NRE again misrepresent the truth in stating "*The use of a Community Consultative Committee (CCC) that is commonly used in other mine sites was not selected as part of this strategy*." As the email correspondence documents, the community was not at any stage asked to make choice between a conventional CCC and the framework being sought by Gujarat. The pros and cons of the conventional CCC were not canvassed by Twyfords. The impression in the meetings was that the framework being drawn out by Twyfords was to be in addition to a conventional CCC. When concerned community representatives asked if a conventional CCC would be formed, the response was vague.

Part A of the EA also states "*NRE believes that a CCC at the core of the strategy would have a high risk in compromising both effective engagement, and effective business operation (Twyfords, 2012).*" The statement is not explained and neither concern was raised during the Twyfords led consultation process of 2012. At no point did Twyfords raise concerns about the conventional CCC. In hindsight its clear Gujarat had an outcome in mind and the consultation process was a failed attempt to give the impression it was the community that sought that outcome. The process, and its subsequent representation by the company and Twyfords, was dishonest and this reflects poorly on both.

Undermining Confidence in the NSW Assessment and Regulatory System

Many reasons have accumulated for a decline in confidence in the NSW assessment and regulatory System. The saga of Gujarat's expansion of the NRE 1 mine behind Russel Vale exemplifies its flaws and failures. The PAC was introduced as independent body, at least in principle, to address long standing concerns with the objectivity of Government departments with an economic focus (DoPI and DRE) assessing mining proposals that delivered revenue. The series of PAC approvals for the NRE 1 mine have damaged the credibility of the PAC - a risk the PAC recognised in granting the approvals.

Though seemingly well intentioned, Gujarat NRE have nonetheless established a track record of non-compliance. Management plans required for the approved Preliminary Works project were months overdue and the company was months late in establishing a Community Consultative Committee (CCC). End of panel reports are overdue and a due independent review has been delayed.

Gujarat have twice been penalised $1,500 by the EPA and the SCA fined Gujarat $1,500 for damage caused to swamp and *Pultenaea aristata* during the establishment of subsidence monitoring equipment for Longwall 4 in Area 2. The most recently completed longwall in their Wongawilli mine lacked a subsidence monitoring line. Though the DoPI initiated an investigation into a significant number of compliance failures in early 2012, there has been no consequential penalty - in contrast the fines imposed by the SCA and OEH.

The history of the expansion project is noteworthy. 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 Web site. Director-General requirements were issued in the same month. The DoPI received a draft EA for the expansion project in February 2011.

A substantial amount of the material in Appendix J of the 2012 Preliminary Works modification application (MP 10_0046 Mod 1) came from the yet to be completed Underground Expansion Project application- underscoring the view that **the modification proposal did not constitute an modification, but was to begin the longwall mining otherwise planned for the Underground Expansion Project**. The Preliminary Works proposal itself 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 proposal did not include longwall mining or other secondary extraction.

The Preliminary Works application was approved in October 2011, in spite of agency opposition, opposition from Wollongong Council and opposition from the community. There were two noteworthy concerns with the approval;

(i) that it admitted a stepwise approach to the establishment of the delayed expansion project and

(ii) (ii) that approval was given for infrastructure work needed for the next phase of the expansion project - so applying pressure for the subsequent approval of the next phase.

The PAC recognised the risk of to its credibility in approving the project: *‘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*.’

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 (Area 2) 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, posing a threat to significant upland swamps.

Gujarat 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 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 2012. The transitional provisions exploited by Gujarat were not intended to allow the introduction of new longwalls and a challenge to the legality of the approval was initiated by the community group Illawarra Residents for Responsible Mining. The challenge had excellent prospects of success but had to be abandoned when the group was required by the Court to provide $40,000 in security funds. This underscores the great disadvantage the community suffers in seeking justice.

It is surely reasonable to suggest that the legislative provisions of NSW should not be manipulated or distorted 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.

It is surely reasonable to suggest that the legislative provisions of NSW should not be manipulated or distorted 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.

The modification proposal to add Longwalls 4 and 5 and Gateroad 6 to the Preliminary Works project was approved in haste and considerable community dissatisfaction in December 2012 The community argues that a proposal that added longwall mining and introduced the unknown impacts of triple seam mining to the Special Areas could not sensibly be regarded as a modification to the Preliminary Works project. The PAC recognised there was doubt, but nonetheless approved the proposal. Evidently recognising its falling credibility, the approval rejected the inclusion of gateroads 7 and 8.

The modification proposal contained errors, misleading statements and comprised an amalgam of subsidence management plans and expansion project material. Approval was granted by the PAC in the knowledge of the record of non-compliance, misleading representations and fines by the SCA and the Environmental Protection Authority. The approval states a recognition that approving works solely and clearly intended to establish infrastructure to enable mining for which approval has yet to

be sought would undermine confidence in the NSW approval and regulatory system. The PAC would have been aware that the same concerns had been raised in Gujarat's application for longwall mining in the Nebo area of its Wongawilli mine. That application included a driveage for a future expansion project unrelated to the Nebo longwalls. The PAC approved this proposal as well.

The PAC justifies its approvals as a consideration of the need for continuity of mining operations, which is the argument made by all of the companies extracting coal from the Special Areas. Credibility is the price paid in bending the regulatory system and setting aside rational and responsible decision making in order to accommodate the commercial needs of mining companies.

The PAC and the DoPI evidently regard the mining of coal as of greater importance than the credibility of the NSW assessment and regulatory system, and of greater importance than the environment from which it is extracted - and the water that environment provides.

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Attch G

Submission on Expansion of Gujurat NRE No 1. Mine.

By Murray Scott.

Political Donation disclosure:
Annual subscription to The Greens NSW of $50/year for past 2 years, total $100

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Summary of Immediate Environmental concerns:

These issues are of great concern to me but are covered in detailed submissions by others which I thoroughly endorse.

- Subsidence damage incurring loss of surface and ground water from the Cataract Water Catchment.
- Irreversible dessication and devegetation of swamps that are essential for moderating and maintaining stream flows to sustain swamp and stream ecosystems
- Disamentity to residents neighboring the colliery entrance, including increased noise, dust fron the increased stockpile and truck traffic on local roads
- Disregard for the greenhouse gas impact of fugitive methane and combusion products of the coal extracted.

Greenhouse Gas emissions

From group discussions I know that my other concerns above have been carefully researched and covered by other submissions. I wish to make a special point of greenhouse gas emissions because Governments and companies exhibit deep denial about the realities of climate action.

In dealing with fugitive emissions which amount to 2.44 M t /yr NRE propose only vague investigations of mitigation measures, and initially none beyond business-as-usual control of transport and electric power consumption.

Regarding fugitive CSG emissions, in EIS Part B 11.5 states:

> "Under current operating conditions for explicit safety reasons the mine's ventilation system contains methane at concentrations up to 0.2%. Technologies that promote the burnting of methane in the ventilation stream require methane concentrations to be above 0.3% and ideally at 1.0%/ to operate effectively- "

Under what conditions could ventilation streams of >0.3% methane have been tolerated for use with such technologies?
Why can those conditions not be achieved for the NRE mine?

> "For obvious safety reasons it is not appropriate to restrict air to the undergrozmd workings in an attempt to increase the methane :entration of the ventilation stream. Hence the utilisation of this technology is currently not viable or practical and would only become possible should a separate gas drainage extraction system be developed.
> As mining operations progress to the west with deeper depths of cover, it is predicted that the gas content of the coal *will* gradzially increase. This gradual increase will necessitate installation of a gas drainage system that will extract the gas from the coal prior to mining in order to reduce the in-situ gas levels to prescribed amounts to facilitatesafe mining conditions. This can be done using a combination of pre and post niining gas drainage and delivery of product to the surface for utilisation":.

Presumably the current carbon price/tax is insufficient to induce NRE to install such a drainage system from the start. What consideration has the company made for steep rises in the carbon price predicted in the Garnaut Report within the proposed life of this project as the result of present procrastination? Would it not be more economical to incorporate effective gas drainage and utilisation now? Section 11.6 goes on to list strategies company might consider to reduce fugitive emissions. Such vague intentions are inappropriate for an EIS and offer no assurance of future action.

The conventional position regarding Scope 3 emissions is reflected in a convenient fiction embedded in NSW and Federal greenhouse abatement laws and in this EIS :

Main Report Part B p188

> *Table 11.1* it is important to note that Scope 1 and 2 sources are those under direct management control of NRE. That is, NRE is able to implement measures which will directly affect emissions associated with these sources.
>
> Scope 3 sources are not under direct management control and therefore the opportunity to reduce emissions from these sources is less direct.

That statement is incorrect and wilfully blind to the obvious fact that Scope 3 emissions are directly under the control of NRE and the PAC in assessing this proposal.All mined coal is intended to be oxidised to greenhouse gasses. This assessment process thus concerns NRE's potential direct responsibility for Scope 3 emission of 6.67 Mtonnes / year CO2 equivalent for 20 years, spanning the timeframe over which the IPCC and all countries agree that global emissions must be cut to avoid destructive climate extremes. Wherever it is burnt, any decision to expand extraction of fossil fuels, particularly coal, thus implies intention to breach those treaty commitments.

It will undoubtedly be argued that most of NRE's coal should be exempt from such constraints as it will not be burned for power generation but used for smelting supposedly essential steel. Acknowledging that substitution is even more difficult for materials such as steel, cement and aluminium than it is for electricity or transport fuels, nevertheless such production generates greenhouse gasses that must be accommodated over coming decades within a tightening greenhouse emission budget. It is time that this reality was recognised in economic and resource planning, otherwise industry employees will be caught in a devestating enforced economic collapse.

However undesirable, coal or gas extraction cannot stop overnignt. The agricultural, water catchment and ecosystem damage from some existing mines is now irreversible and must continue to operate and provide employment over their planned lifetime to prevent economic chaos.and allow planning for redeployment in other industries. Mining should never have been permitted in the metropolitan water catchments but that is history and now NRE too must unfortunately be allowed to produce at existing levels for the duration of present approvals. With the rest of the iindustry it must plan for an orderly shutdown and under no circumstances should such companies be given approvals for unsustainable growth.

Object a(vii) of the EP and A Act , " ecologically sustainable development, " is not achievable without economic and social sustainability, which requires planning for an end to growth in material throughput and an orderly shutdown of fossil fuel extraction. Under current *burning* technologies, the remaining coal, oil and gas deposits no longer represent an economic resource, their value being outweightd by climate change diseconomies.. Future generations may find much better *non-burning* uses for these materials.

Attch H

NATIONAL PARKS ASSOCIATION OF NSW
protecting nature through community action

Illawarra Branch
PO Box 847, Wollongong NSW 2520
illawarra@npansw.org.au

NPA Illawarra Branch submission regarding NRE No. 1 Colliery Project Application Environmental Assessment

The National Parks Association of NSW (NPA) was formed in 1957 to promote the concept of a network of national parks in NSW managed by a professional agency (currently the NPWS) and governed by legislation. The NPA Illawarra branch has over 120 members and a long history of working in various ways to protect the environment of the Illawarra so that it can be enjoyed by future generations. The branch has over 120 members and is engaged in both conservation work and conducting outdoor activities, with the aim of fostering appreciation and protection of our natural heritage.

The Illawarra Escarpment is an iconic feature of the Illawarra region, providing a spectacular natural backdrop to the adjacent coastal urban areas. The Woronora Plateau lies above the escarpment and is an important part of the water catchment area for the Sydney area. Some areas of the plateau were designated as Special Areas by the Sydney Catchment Authority in 1998. The intention was to protect the water catchments of the Avon, Cataract, Cordeaux, Nepean, Warragamba and Woronora Dams, and ensure an ongoing supply of high quality water for their reservoirs. The dams hold water for the residents of Greater Sydney and its nearby southern regions – more than 5 million people or some 60% of the population of NSW.

Coal mining in the Illawarra has been carried out extensively for more than 150 years, and in recent years there has been intensive mining using the techniques of longwall mining. The Southern Coal Fields Inquiry (SCI) was established with an independent panel of experts in 2006 as a response to rising community concerns over both past and potential future impacts of mine subsidence on the significant natural features in the Southern Coalfield. These concerns first surfaced in the community in 1994 when the bed of the Cataract River suffered cracking and other subsidence impacts. In 2010, after a PAC report, BHP announced that it would withdraw its plan for mining in some eastern areas of the Bulli seam. This PAC decision (usually referred to as BSO PAC 2010) seems to be mostly ignored in the Gujarat proposal: for example the PAC decision states:

> *The Panel is of the view that it is no longer a viable proposition for mining to cause more than negligible damage to pristine or near-pristine waterways in drinking water catchments or where these waterways are elements of significant conservation areas or significant river systems.*
> *This level of damage would not be acceptable in any other assessment of water resource use…*
> *The analysis reported in Chapter 17 shows that the benefits of protecting significant natural features in the eastern and southern areas are likely to be of a similar magnitude to the mining profits that would have to be given up to ensure that protection. So while protection of the significant natural features would involve lower mine profitability, it is likely that society as a whole would gain more from the environmental protection recommended than it would lose in terms of foregone profits.*

The Illawarra branch of the NPA wishes to express its concerns regarding the current proposal by Gujarat NRE for a major expansion of its longwall mining activities underneath the Woronora Plateau and its associated creeks and coastal upland swamps. We believe that evidence predicts that the long term effects of the drawdown of water and the subsidence, tilting and cracking of bedrock, will damage the land irreparably and creates grave risks to the future water supply for Sydney. The BSO PAC 2010 Panel for the Bulli Seam Operations (BSO) provides a detailed account of the Precautionary Principle and its application in a mining context. The proposal from Gujarat fails to adequately apply the Precautionary

Principle.

We believe it is worth re-reading all the text below from the NSW legislation *Protection of the Environment Administration Act 1991 No 60.* The Sydney Catchment Authority is required to conduct its activities in accordance with this Act. The Gujarat proposal conflicts with the Act in a number of ways, particularly (a) the Precautionary Principle, (b) inter-generational equity and (c) the conservation of biological diversity and ecological integrity.

From the Act:

> *For the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:*
>
> *(a) **the precautionary principle**—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*
> *In the application of the precautionary principle, public and private decisions should be guided by:*
> *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
> *(ii) an assessment of the risk-weighted consequences of various options,*
> *(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*
> *(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*
> *(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:*
> *(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
> *(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
> *(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

We question whether the SCA is conforming to the Act and to the SEPP (Sydney Water Catchment Authority) 2011 which aims to "provide that a consent authority must not grant consent to a proposed development unless it is satisfied that the proposed development will have a **neutral or beneficial effect** on water quality"

The Environmental Assessment Report was put on exhibition in late February 2013 and the community was given only 6 weeks to digest and assess the contents of the 2000 plus pages: an impossible task. We will focus on issues relating to water and to the coastal upland swamps, but will first address a few other points.

1. How many jobs will be created?

We notice that Gujarat claim that the expanded mining will provide **409** regional jobs as well as another **2,137** regional indirect jobs. The job multiplier used appears to be different to that used by BHP Billiton IC for the Dendrobium longwall mine, a similar project also on the Illlawarra escarpment. Dendrobium estimate that their project will create **406** fulltime jobs and will lead to **1000** regional indirect jobs.

How can there be such a difference? A multiplier of 5 is very unlikely. The Australia Institute published a report in 2012 titled "Mining the truth" which states:

> *"It is important to remember that the same multiplier effect' applies in virtually every sector; whether it is teachers, plumbers or miners spending their incomes, additional jobs will inevitably be created.The inclusion of indirect employment in mining sector employment figures is frequently used by the mining industry as a device to make employment in mining appear substantially larger than it otherwise would if we relied on official ABS statistics."*

2. Financial issues

The company Gujarat NRE is listed on the Australian stock exchange but the majority of stock is held by the Jagatramka family (residents of India) and the HSBC bank. Most of the stock is held indirectly by the private company Wonga Coal P/L. The company has a heavy debt burden. What will be the consequences if the company fails, will the NSW government be able to ensure proper closure and rehabilitation?

Foreign owners mean that profits are exported: from "Mining the Truth" op cit

> *It is not just iron ore and coal that Australia exports in large quantities; we export a lot of dividend payments as well. In 2009-10 mining profits were $51 billion, of which 83 per cent, or $42 billion, accrued to foreign investors.*

3. Health impacts

We will not attempt to discuss all the significant negative health impacts which are likely to be felt by local residents, except to mention the impacts of diesel exhaust fumes. Diesel exhaust fumes were reclassified to a Class one carcinogen by the World Health Organization in mid 2012. The proposal will increase significantly the number of trucks travelling from Russell Vale to Port Kembla, emitting diesel fumes on a residential route which is past houses and schools

4. The Visual Impact of the Colliery on the beauty of the Escarpment

The Escarpment is well loved by the community and features in all plans for the future of Wollongong as a tourism destination. We believe that any coal mining and associated infrastructure should be well screened.

The photo below shows the coal stockpile in 2011, when it was (presumably) less than 80,000 t. Options in the EA for stockpiles include coal storage of as much as 840, 000t!

The long shape of the colliery building can easily be seen in the background

The colliery building lies well above the coastal plain and negatively impacts on the beauty of our escarpment

Water, subsidence and coastal upland swamps

We find it puzzling and confusing that there are so many consultants reports on related issues and yet seemingly little evidence of discussion between the parties. The Executive summary and the Main Report frequently do not reflect the statements made by the consultants.

Upland swamps are highly significant natural features and in 2012 were listed as an endangered ecological community under the Threatened Species Conservation Act 1995. The swamps are groundwater dependent, provide habitat for several threatened species and provide critical ecosystem services by storing and filtering baseflow water for the streams and rivers of the drinking water catchments. The swamps should not be undermined.

The consultants report by Biosis, Annexure Q, identifies **74 significant swamps**:

> *This project identified a total of thirty-nine (39) upland swamps meeting the definition of the Coastal Upland Swamp Endangered Ecological Community within the Wonga East study area and forty-five (45) upland swamps within the Wonga West study area. This assessment method identified a number of previously unmapped swamps within the study area, as well as highlighted the complexity and variability of this vegetation community.*

The report also states (page 31):

> *All upland swamps within the study area fulfil two out of the five criteria listed in OEH (2012) for determining whether upland swamps are considered to be of 'special significance'.*

Of these swamps, 15 were deemed to be of “special significance” as defined by OEH.

We submit that all 74 of these swamps are of importance to the overall ecology of the water catchment areas and to its biodiversity and all of these swamps are likely to be damaged as described in detail in Annexure Q (Biosis) and in the ways outlined in the BSO PAC 2010.

Dewatering of the longwalls is necessary for longwall ming and the EA estimates that more than 3 ML will be removed each day from the mine. Some will be re-used within the mine, for cooling equipment etc, but all of the groundwater will be disturbed and possibly polluted and this will have an impact on surface areas, some of which is already impacted by previous mining. The groundwater modelling in Annexure P predicts that although the overburden will become depressurized, the Bald Hill Claystone layer will remain intact. However, a different prediction is made in Annexure N (Pells page 32)…

> *"The writers conclude that the role of the Bald Hill claystone in reducing mining impacts has been overstated in the EA for the following five reasons:*
>
> *1. The Bald Hill Claystone is not continuous across the site…*
> *2. The monitoring data does not support the statement that the Bald Hill Claystone is creating a hydraulically disconnected system…*
> *3. The values used to model the Bald Hill Claystone are not congruent with the measured properties…*
> *4. The assumption that the Bald Hill Claystone will not be impacted by subsidence needs to be tested…*
> *5. The philosophy of 'hydraulic separation' requires clarification…"*

Pells gives justifications for each of the 5 reasons above but we are including only the fifth one below, because it is so significant for our future long term water supply. **The mine will perhaps provide jobs for 18 years but we need drinking water for a much longer future.**

> *The philosophy that a geological feature such as the Bald Hill Claystone could create a 'hydraulic separation' needs clarification. Clarification is required between quantity of groundwater flow, and direction of groundwater flow (and the orientations of groundwater equipotentials). Clarification is also required regarding the transient effects - i.e. the time taken for depressurisation to occur. The timing of depressurisation is important, given the finite time of the mine. This rate is very sensitive to the values of hydraulic conductivity and storage values chosen, which are not known with confidence.*
> *The presence of a low permeability horizon will reduce the quantity of vertical flow, but the development of a vertical flow direction, albeit slower, will still (eventually) occur and will still be associated with significant depressurisation and its effects.*

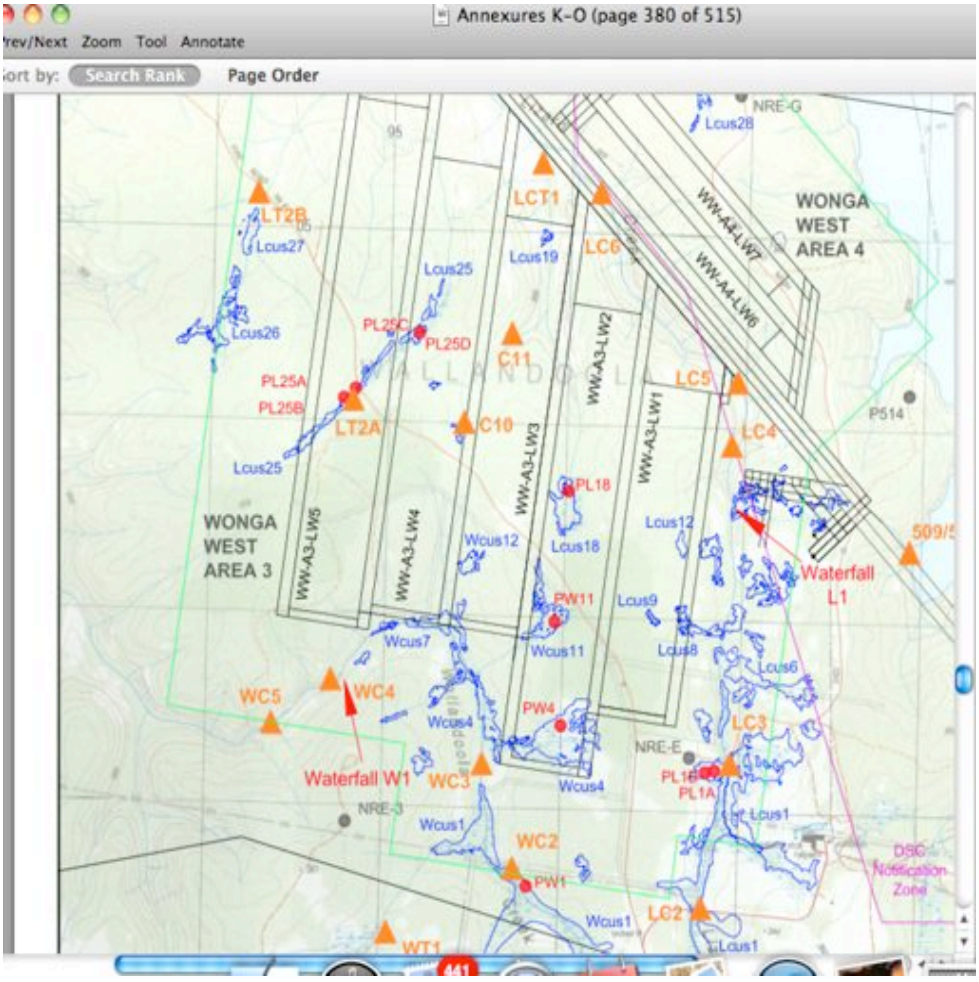
We know that the swamps are placed at high risk by mining induced subsidence, yet the EA states (our underline):

> **"adaptive management measures for these swamps have been made to reduce as far as <u>economically viable</u> the impacts on these swamps"**

The longwalls plans in Wonga East were revised at some point such that plans to mine beneath Mt Ousley Rd were abandoned, to avoid the risk of damage to the road. **Likewise, mining under creeks and swamps should not proceed. Why should our signifcant natural features be less important than our infrastructure? What will future generations say about our decisions?**

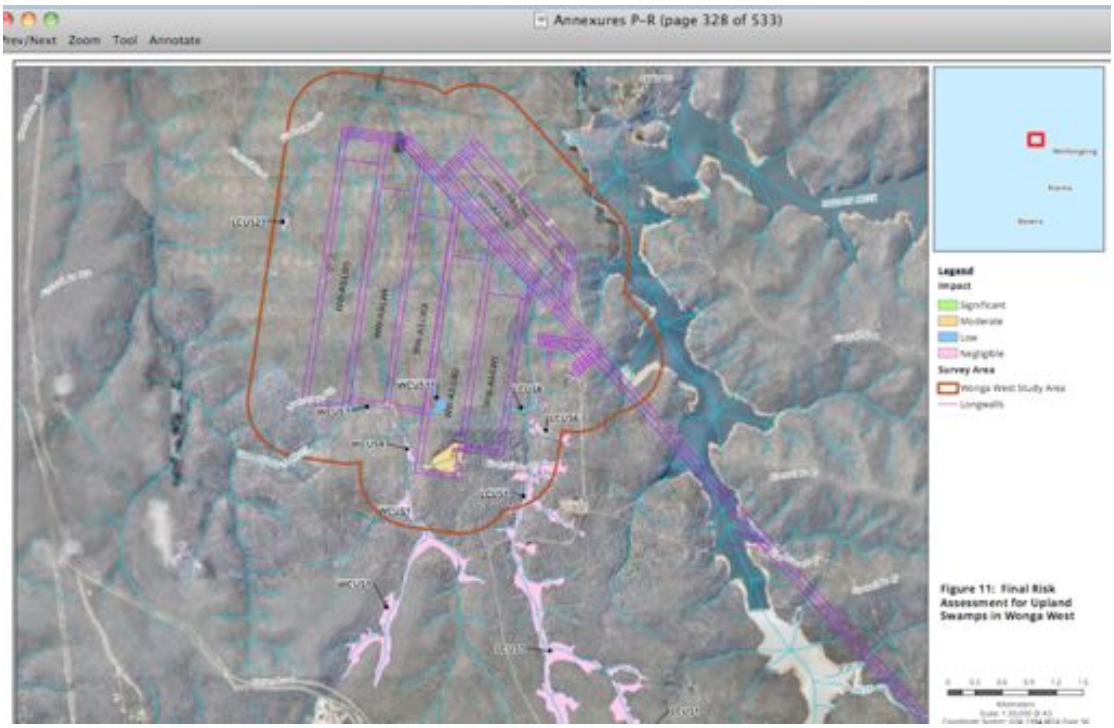
In the area referred to as Wonga West Area 3, five panels are planned which will be up to 390 m wide. The EA states that these panels underlie steeply sloping streams as well as upland swamps. These panels are extremely wide and the

subsidence which will be caused is known to be very difficult to model, especially in the context of multiple seam mining. The geology of the area includes faults and dykes which complicate any modeling. We know from results from LW 4 in Wonga East that the Seedsman modelling underestimated the observed subsidence by 38%.



Map from Annexure O – Geoterra - Stream assessment

We suggest that a quick look at the Biosis map (below), "Figure 11: Final Risk Assessment for Upland Swamps in Wonga West" gives a false impression as many swamps are not shown on the map. The Geoterra map (above) gives a quite different impression of the number of swamps in Wonga West which will be impacted.



Map from Annexure Q – Biosis -Upland swamp assessment

The text of the Biosis report recommends **avoidance**:

> *There is a moderate likelihood of negative environmental consequences for two (2) upland swamps within the study area, including WCUS4-hws and WCUS7. NRE should consider implementation of suitable impact avoidance, minimisation and mitigation measures to reduce impacts to these swamps.*

Whilst the executive summary of the EA (page ix) merely states:

> *"There is potential for impacts to swamps of special significance…*

and makes no mention of the need for avoidance.

The cumulative impacts of mining need to be considered by the Director-General. As far as we're aware, to date none of the three companies extracting coal in the Special Areas accept that there have been deleterious changes to swamp water levels which are directly attributable to subsidence. Instead the companies currently mining in the water catchment areas argue that observed changes to the swamps are climatic and/or are temporary. The PAC, OEH, SCA and environmental groups do not share this position. Even the Gujarat consultants SCT advise, **the only way to protect swamps is not to mine beneath them** - the swamps are too important to put at risk.

Dr Ann Young (quoted below) has been studying these swamps for many years and does not believe that adaptive management is possible. Once the bedrock is cracked by subsidence and tilting the swamps will slowly disappear, taking all their environmental benefits with them.

> *"The only measure for which there is a useful mitigation strategy proven is surface erosion. The coir matting system can restore water levels and reduce erosion - **but only if the underlying bedrock is intact and the water moving into the area does not drain to the subsurface.** The grouting of rock is not a viable technology. Its usefulness is not accepted by many; it is expensive and time-consuming and invasive of the damaged area; it could not be applied under the swamp sediments; and fixing just a rock bar at the downstream end would not fix a damaged swamp."*

Some further contradictions are given below:

Annex N states

> *The available monitoring data does not provide a confident assessment of the water tables in the Upper Hawkesbury Sandstones across the site, and hence does not provide quantifiable insights into the groundwater dependency of streams. Similarly, there is no stream gauging data. The available data does not support a* confident assessment on impacts to surface water systems, and it will be difficult *for the monitoring to perceive and quantify impacts to surface water features from mining.*

The EA executive summary states (p. vii)

> *A monitoring regime, as well as adaptive management and the development of contingency measures has been developed to monitor changes to the groundwater system and implement management measures should unexpected impacts occur, or are likely to occur based on ongoing monitoring and updated predictions due to mining.*

And regarding Wonga West, Annexure N (Pells) states

> *1. There are clear signs of negative impacts from the previous Bulli longwalls on Lizard Creek downstream from the point that has been termed the "Cracked Peat Hole".*
> *2. There are clear signs of negative impacts on Wallandoola Creek downstream of the observation point WC4.*
> *There is no need for us to repeat here the details of the damage to Lizard and Wallandoola Creeks that can reasonably be ascribed to subsidence impacts from the previous Bulli Seam longwall mining. The one point we would note is that the reported stream collapse at the 'cracked peat hole' corresponds to the point where a major dyke system crosses Lizard Creek. We think this dyke has contributed to what appears to be a collapse of the bed of the creek.*

And Pells p. 47

> *We note the findings of the Bulli PAC report, quoted in Section 14.2, in respect to negative impacts, at many places in the Southern Coalfields, on stream and swamp hydrology.*
> *We are of the view that groundwater modelling cannot provide definitive answers as to impacts on creeks and swamps.* ***We consider that the modelling completed to date for the NRE No 1 project does not properly consider the likely ranges of permeability and storativity parameters, but notwithstanding this limitation, does indicate that the existing workings, and the proposed mining will have negative impacts on the groundwater regime.***
> *We conclude that there will be additional negative impacts on Lizard and Wallandoola Creeks, and the tributaries of Lizard Creek that are located above the proposed Wongawilli longwalls. We also conclude that there will be negative impacts to the length of Cataract Creek that has probably already been impacted by prior mining.*
> *We consider that it is probable that there will be negative impacts on at least five swamps above the Wonga West workings, namely wchs1, wchs2, lchs3, lchs4 and wcfs2 (see Figure 22). We are unable to quantify these impacts.*

Then there are comments such as these in Annex O "Stream assessment" which evidence the impacts of previous mining damage. Surely it would be easier for the Director-General's department and others reading these EA annexures to have them independently consolidated and analysed in a short report, as much of the information in the EA appears to contradict the multiple consultant's reports.

5.2.3 Cataract Creek

Volumetric stream flow monitoring has not yet been conducted in Cataract Creek, however

3 sites are being investigated for their suitability, taking into account the potential effects of:

the presence of zones of subsidence cracking in the creek bed resulting in disconnected stream flow during low flow periods due to mining subsidence over the Bulli Seam and Balgownie Seam workings dating back to the 1970s.

The problems of self -monitoring by companies

Operating a mining company safely and profitably is a difficult and complex enterprise. We know from recent incidents with the chemical company Orica that the current regime of reporting environmental accidents can be hard to achieve. We recently learned from a Sydney Morning Herald article that the company AGL failed to monitor emissions for 4 years

From the SMH:

"Energy company AGL has breached its environment protection licence by failing to properly monitor emissions from a gas plant south-west of Sydney since 2009.

The coal seam gas processing plant at Rosalind Park, near Menangle, operated between 2009 and last year without continuous monitoring of nitrogen oxide emissions, as required by its licence.

The monitoring equipment apparently broke down in October 2009 due to "vibration, contamination and high temperature".

Maybe a new regime of spot checking, independent of the company, is called for?

Gujarat NRE was slow to establish the required **Community Consultative Committee (CCC)** but one was finally formed in 2012. From the minutes we have learned that there have been a number of reportable incidents and fines, one involving the clearing of vegetation in an Upland swamp, vegetation which we know takes many years to replace.

From CCC October 2012
Mining Lease:
Failure to install and survey several approved monitoring points prior to the commencement of LW 4 extraction in April 2012. A report submitted to DRE.
Action taken by NRE : No further interim approval was issued until NRE installed and surveyed approved monitoring points immediately following DRE notification.
Outcome: A fine received from DRE .

SCA Approvals:
(1) Failure to installed sediment controls as required part of the approved pipeline works had not placed along part of the access track result into pollution to water on 16 May 2012.
Action taken by NRE : NRE ceased all activity immediately in this area following SCA notification and the necessary sediment and erosion control measures were installed to avoid further impacts.
Outcome: A fine received from SCA.

(2) The project was not undertaken in accordance with the approved Ready Reckoner Checklist. The Ready Reckoner Checklist stated that there would be nil impact on native plants as "...vegetation will not be cleared in Upland Swamp plant communities..". The accidental clearing of vegetation within two upland swamps has occurred during the clearing of the subsidence monitoring lines for LW 4 in May 2012. A report submitted to SCA.
Action taken by NRE :

- The affected area is closed off for regeneration of vegetation.
- NRE has developed a vegetation clearing procedure and access procedure for works being undertaken in the SCA Special Access Area to prevent the recurrence of the incident.
- Ecologist to be required prior to any further clearing. **Outcome: A fine received from SCA.**

Why should these environmental impacts be allowed to occur in our Australian environment in order to benefit the economic viability of a mining proposal which will send coal to India, some of it for power generation?

Just this week the Climate Commission published a report drawing on the latest research and observations from bodies including the CSIRO, the Bureau of Meteorology and Australian and international universities. The report states that the recent extreme weather events in Australia are caused by climate change effects, due to increased greenhouse gases.

According to the EA, the Bellambi expansion would release approximately 95,000 tonnes pa of methane - much more than a usual mine, and approximately 2% of the methane produced by the entire Queensland coal seam gas industry.
A local engineer estimates that this would add 0.43% to Australia's TOTAL greenhouse emissions and increase our fugitive (leaked gas) emissions by 6% - from a mine producing about 1% of Australia's coal.

The NPA Illawarra Branch submits that there are many inconsistencies and inadequate prior monitoring in the EA under consideration. We believe that the Protection of the Environment Act should be followed, especially these criteria relating to future generations and to conservation:
From the Act, op cit.

> **(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations**
>
> **(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration**

Submitted on behalf of the NPA Illawarra Branch by Helen Wilson, Secretary of the Branch

Attch I

Attention:

Planner, Clay Preshaw,

Mining and Industry Projects
Major Projects Assessment
Department of Planning
GPO Box 39
Sydney NSW 2001

Objections to Proposal MP 09_0013

Dear Clay,

As a resident and user of roads in the Illawarra I write to object to the proposal of Gujarat NRE for their Underground Expansion Project MP 09_0013.

The increase in the volume of coal to be extracted from the Russell Vale Colliery is an order of magnitude greater than the current license, my understanding is the proposal includes 390 metre longwalls, the widest proposed to date for the Southern Coalfields, includes triple seam mining and the proximity of the colliery to residential areas are all key problems with this proposal.

Below some of my concerns and reasons for my objection to this proposal are detailed:

Environmental and cultural consideration

There is evidence of damage to creeks and swaps above areas that have already been mined. The impact of the three tier mining approach proposed cannot be accurately predicted because there are not precedence of this approach in this area. The proposed longwall mining undermines and threatens Cataract River, Cataract Creek, Lizard Creek, Wallandoola Creek and Cataract Reservoir, a number of upland swamps, including swamps of significance, Endangered Ecological Communities and Threatened Species habitats, major cliff lines and Aboriginal Heritage sites - including a sacred birthing site. Ensuring good water supply and high quality water needs to be a high priority for the State. My concern is the potential damage to water quality and supply for the Sydney catchment and the potential damage to the ecological communities and sites of Aboriginal significance cannot be adequately justified by royalties and jobs in the mining sector.

Subsidence is a risk of any mining project and the uncertainty of triple seam mining poses unacceptable risks to the community, catchment and the natural and cultural environment of the area.

Community, health and amenity consideration

Russell Vale Colliery is the closest to residential areas of any in the Illawarra. Public health impacts of coal dust are well documented. The new coal storage stockpiles proposed vary from 315,000 to 840,000 tonnes. The proximity of these proposed stockpiles to residences, schools and pre-school is unacceptable.

Living beside the Illawarra railway line I am aware of the health impacts of coal dust from uncovered trains. The expansion of the mine would result in 682 truck movements daily at peak times on Bellambi Lane and the Northern Distributor. The health impacts from coal dust, diesel exhaust, noise and traffic congestion need to be considered. Bellambi Lane already frequently requires resurfacing from the current number of truck movements each day. The increase in truck movements is just too many truck movements per day in such an urbanised area. In considering the air quality impact of this proposal the pollutants from exhaust fans from the Wongawilli seam need to be addressed.

It is important that the proponent has the ability to invest and modernise the mine and colliery infrastructure to standards that will significantly reduce the risk of the impacts listed above. If the Department of Planning cannot be satisfied this will occur, then the proposal should not proceed.

Thank you for your attention to this matter, yours sincerely,

Lisa Metcalfe
29 Oceana Pde
Austinmer 2515

Attch J

My wife and I live at 13 Broker Street Russell Vale and have done so for about 3 years. We purchased the property about 5 years ago knowing full well there was a coal mine next door but at that stage production was quite low (actually, I think it was closed). We're not against the mine – actually, it's good for the local economy – but these proposed expansions are concerning.

We've noticed an increase in the number of trucks coming down from the mine over the past few months – with a proposed ten-fold increase in coal production I can only imagine what the noise (and traffic for that matter) will be like. Surely this is excessive? Shouldn't GNRE be looking at other transport options to avoid Bellambi Lane? If they're in it for the long haul like they say they are then proper investment in alternate transport options (e.g. direct rail, an access road at the rear of the mine away from residential areas) must be considered. I'm sure the RMS share similar concerns to the effect this many trucks will have on current infrastructure, let alone the effect coal dust will have on the environment (where is the NSW EPA on this)?

The proposed coal stockpile is another concern. We already have a considerable amount of coal dust on our property, and with a pre-school on the same road I'd hate to think what this is doing to the kids. I took a photo of our back deck railing after I'd cleaned it the night before (see below). You can imagine what it looks like after a week or so. There is a clear and documented link between coal dust in the air and lung and respiratory problems, such as asthma and numerous forms of cancers. I cannot see how the approval of this expansion will do anything but increase the amount of coal dust in the surrounding air.

At what cost to our local environment will the approval of this expansion come at? Shouldn't we be encouraging companies to invest in renewable energy resources instead of draining our natural ones?

House prices in the surrounding areas will surely decrease with an expansion of this size. If the plans somehow make it through the NSW governments approval process (and history would suggest they'll let anything through for the right price) then adjoining residents must be compensated.

Another point to note, GNRE (and JSPL who are looking at buying them out) have said on the record that there is ample coal in India but due to complex regulatory processes compared to Australia's relatively lenient processes it's more efficient to source the material from here. It's time our regulatory authorities to live up to their responsibilities to citizens as opposed to big business and act in the best interests the community. We were here before they got here, and we'll be left here to deal with the fall out long after they're gone.

Again, I want to make it clear that we're not anti-coal mining. As I said earlier, it's been a great boost for the local economy – but, with such a large expansion planned GNRE need to take some responsibility and adequately plan for it – even if it means investing in proper infrastructure and safe-guards. After all, it's not as if they're not going to make a handsome profit.

Attch K

Project Application No. MP 09_0013

I object to the proposal on the basis of demonstrable and manifest environmental failings:

First and foremost, to a professional chemist (Ph.D. University of Melbourne 1970), the proposition that a mine could be approved on the basis that a huge quantity of methane emission would be wantonly released to the environment is an obscenity. Methane is a more potent greenhouse gas than carbon dioxide by a multiplier of 25! The disregard for modern environmental standards in this proposal is evident throughout, the failure to mitigate this aspect of the proposal by the simple expedient of igniting the gas and reducing the impact by conversion to CO_2 demonstrates that the proponent has no proper concept of managing fossil fuel impacts on our environment. Of course, the burning of the gas would serve as an ever present reminder to the community of the appalling vandalism occurring at the mine, so the proponent's strategy is to indulge in immensely polluting release (colourless and odourless therefor not visible) rather than to mitigate or minimise this harm.

The EIS Table 11.2 states that the expected methane emission factor[1] emitted during coal extraction is 0.7887487. This absurdly precise estimate is almost treble the government guideline value of 0.305 for a "gassy mine". It translates to nearly 2.4Mtpa CO_2 of fugitive emissions per annum ie 6% of Australia's TOTAL fugitive emissions of 41Mtpa.
The EIS table 11.6 states that this operation - producing 3M tonnes pa ROM coal – less than 1% of Australia's total coal production of approximately 400Mtpa - would add 0.43% to Australia's total GHG emissions. If the entire coal industry had the same emissions factor as this proposed mine expansion it would produce over half of Australia's greenhouse gases. The proposed operation would emit approximately 95,000 tonnes methane per annum.[6] This is approximately 2% of the 5Mtpa methane produced by the entire Queensland coal seam gas industry with its 4400 gas wells. Indeed the hypocrisy of the government allowing extraction of Coal Seam Gas on the basis that methane as a valuable resource in one location and then permitting the squandering of this very resource due to the proponent's laziness and/or parsimony would be inexcusable

On this basis alone, the proponent must be rejected on environmental grounds.

Over the time that the proponent has operated this mine, they have repeatedly failed to monitor their activities as required in their development consents. This much expanded proposal has been delayed repeatedly and is piecemeal, outdated in many respects and inadequate to address any proper scrutiny. If submitted as a post-graduate student submission for a higher degree it would fail on many fronts, just as it should fail to persuade planning authorities that it has been prepared by an entity capable of executing even the most minimal of monitoring requirements.

It is inherently environmentally wrong to ship coal across the globe for any purpose. It is always more efficient to carry the ore to the coal due to the approximate tenfold multiplier on ore/product to coal ratio. It is troubling that whereas high-grade coking coal for metallurgical use must be mined carefully to prevent contamination reducing

its value in this context, it is revealed that the coal being shipped from this mine is not being extracted in a manner which maximizes its value. The valuable resource is being degraded. It is anecdotally suggested that this arose most recently because the Longwall machine was incorrectly aligned at the commencement of Longwall 4. The proponent has not demonstrated the capacity to properly exploit the resource and proposes to continue in a similar fashion. The proposal must be rejected and the proponent required to resubmit any future proposal taking proper regard of the fact that this is the 21st century and early 20th century practices are not acceptable.

The undermining of the upland swamps of the Sydney Water Catchment must not be permitted.

The piecemeal and circular arguments about noise walls which may or may not be needed depending on which version of the application is before the department are evidence that the proponent has no intention of ensuring the site noise is not a problem for nearby residents.

Movement of immense quantities of coal by truck from the site through a residential area which predated this proponents acquisition of the mine is unacceptable. That the mine was sold by its previous owners despite existence of large coal reserves is testament to their acknowledgment that this is a serious consideration for future use of the resource.

The intention of the proponent to continue using antiquated technology wherever they can get away with it rather than investing in doing their workto modern standards is evident throughout.

Use of a stockpile as a means of handling coal on this site is unacceptable.

Air quality concerns are not adequately addressed.

The timeframe for responding to this huge proposal is inadequate. It has taken the proponent years to cobble together this document and the community is required to respond in timelines which are incommensurately short. This proposal has been on exhibition across a time when I was out of the country due to academic commitments and did not have time to fully scrutinise the documents. The cursory analysis provided above should be sufficient basis for the authorities to reject this proposal as unsound and inadequate. Until such time as the development proposal is properly framed, internally consistent and meets modern standards, it must be rejected.

Attch L

NRE1 UNDERGROUND EXPANSION PROJECT 09_0013

Submission by Dr Ann Young, April 2013

In making this submission, I acknowledge the efforts Gujarat NRE Coking Coal have made to minimise damage to some of the significant creeks and swamps in the project area. I commend the company for its commitment (p 246 of Part C of the EA) to:

> *an adaptive management approach whereby subsidence data will be used to refine mine plans and longwall layouts to achieve the required outcomes. This approach represents an iterative and active management approach which can ostensibly be incorporated as an approval condition in accordance with the draft model development conditions for State Significant Developments..'*

I strongly support the incorporation into the approval conditions of active, iterative adaptive mining and the commitment to change the mine plan or stop mining if impacts exceed specified limits. There is clearly a great deal of uncertainty in the modelling of impacts because of the complexity of the mining history and the paucity of data on multi-seam mining in this area. The recent experience at Dendrobium Area 3B has underscored the importance of retaining control by the Government over the mining pattern to allow response to changing information and changing community standards.

It needs to be noted that this project involves a fairly small proportion of the identified resource for the leases (Part A of EA, pp 17, 43-44) - 300,000 t = 5% of Bulli Seam coal; 25,000 t = negligible amount of Balgownie Seam; 28.5 Mt = 15% of Wongawilli Seam. Also, the small Bulli West workings presumably are to allow access via the V Mains area to the significant resources west of the proposed Wonga West area. **Hence the standards set for this proposal need to be appropriate for any future extensions to the mine**. The EA comments (Part C, p 238 ff) that secondary pillar extraction in the Bulli Seam and Balgownie seam in Bulli/Balgownie West is 'not part of this project'. The obvious implication is that multi-seam mining in the western parts of the lease is within the long-term plan. Certainly by the time this is proposed, there should be better data on the effects of such mining, and **this means that the current proposal's monitoring must be carefully planned to obtain these data**.

SUBSIDENCE IMPACTS ON SWAMPS

The impact on swamp water tables is as poorly addressed in this as in most other EAs for the Southern Coalfield. Annexure P comments (p xii):

- *'the effect of subsidence on the upland swamps and weathered basement in Layer 1, which acts as a receptor for rainwater recharge and can contain temporary perched water, was not directly assessed due to the limitations of the model'* (my emphasis). **In other words, we really do not know how the near-surface aquifers will respond to the predicted subsidence impacts, nor how this will affect surface flow from the swamps or baseflow to streams.**
- *the change to swamp water level variability through subsidence depressurisation is not anticipated to be greater than the current variability resulting from climatic influences* (my emphasis again). Given the short record of piezometric levels shown in Fig 13 and 14, there are no grounds for any conclusions about the relative influence of subsidence and climatic variation. This may be the consultants' 'anticipated' expectation; mine would be the opposite.
- *the swamps are not predicted to lose water by free drainage into the proposed workings*. This is not the issue! The question that needs to be answered is whether - as seems intuitively obvious if the cracked surface and upper Hawkesbury Sandstone aquifers are barely separated - **water lost down subsidence cracks from the surface**

can travel through delaminated and cracked strata to depths below the base of the nearby streams and thus fail to report downstream.

Indeed, I am disappointed by the continuing use of language that suggests that impacts and consequences may not be as bad as I and many others suggest - terms like '*potential* secondary consequence' as if it were not an *inevitable* consequence that loss of water led to drying of a water-dependent ecosystem (p 286 Part C); or suggestions that the species changes at Swamp 1 above Dendrobium since 2006, though 'faster than control swamps', are post-fire changes explicable from Keith's analysis. Given that the fire would have occurred in 2001-2 and presumably affected the control swamp nearby, this seems a long bow. Indeed the simplistic statement that the spread of *Hakea* and other shrubs is 'due to obligate seeding shrubs out-competing others' grossly understates the elegant complexity of the Keith model. I disagree very strongly with Biosis that surface disturbance at Swamp 37a (Drillhole Swamp) *'confounds any attempt to make a conclusion on the impacts of mining*' (p 36). This is not so at all. The drop in water table was due to the subsidence cracking (which happened with 2.4m of subsidence but only 2 mm/m tension and 1.5 mm/m compression). I had monitored the water table at 8m below the surface, ie 3-4m below the sediments, in 1978, approximately 8 years after subsidence. It is this drop in water table which increases the risk of erosion, whether the surface is breached by human disturbance or by heavy rainfalls after fire. **The difference between an undisturbed and disturbed site is the prospect of recovery - minimal if undermined and permanently channelised, as Swamp 18, 37 and Flat Rock show dramatically; and very good if undisturbed, as clearly shown by the record of cut and fill from 11,000 years ago till near present that I detailed at Swamp 37a**. And I reiterate my opinion that the Humphreys and Tomkin view of scour pools in incorrect. I know that mine is simply an alternative view, as yet unproven, but I make the point that so is the other!

Nevertheless, the sequence of effect - impact - environmental consequence - potential secondary consequence quoted on p 286 Part C is a helpful one, especially in relation to the value of monitoring. Keith's model of transition between sedgeland - restioid heath - banksia thicket in the short term and ti-tree thicket/cyperoid heath - sedgeland/restioid heath/banksia thicket - eucalypt woodland was developed from research data from 1961 to 1998 - a record of 17 years, <u>far longer than any monitoring record related to undermined swamps and heathland!</u>. The environmental consequences and then the subsequent secondary consequences of subsidence impacts are not yet apparent in the data so far collected from monitoring in the Southern Coalfield. The monitoring has not been set up in a proper BACI format, or even with control-impact matched swamps and streams. The data available is still short term (less than 10 years), reported only in summary in AEMRs or EoPs, and generally has not been subject to detailed analysis. Reports about changes are in-house to companies and not scrutinised nor publicly available as Keith's has been. **I suggest that for adaptive management to work, the monitoring program for this project needs considerably more thought, so that the information gathered is genuinely useful.**

<u>Wonga East</u>

The predictions (Fig 18.1 and 19.1) show that significant subsidence (0.8-1.2m) should not affect proposed LWs 1-3 but will affect the other LWs especially LWs 6, 7 and 11. The monitoring to date confirms that most subsidence will lie within the panel footprint. This suggests minimal impact to the swamps in Area 1. The Biosis analysis (Annexure Q, Table 8), however, comments that strains at CCUS1, 5 and 10 are likely to cause bedrock cracking. For CCUS4, Biosis comments that it is in 'areas of lower strain' so impacts could be reduced. It is hard to see why strains should be lower here, as it lies across the 'hinge' area at the side of the subsidence bowl (Fig 19.1). I have been to CCUS4. It is a wet swamp in good condition, and the monitoring of the piezo and the stream site here will be crucial to

understanding the impact of subsidence. The data in the Geoterra report (Annexure P Fig 14) show that water levels declined from June to September 2012 during a period of low rainfall. The question is whether the levels respond to rainfall after the swamp is undermined by LW5.

Wonga West

It is hard to see how the predicted subsidence impacts in Wonga West could be seen as acceptable even as a first approximation to be modified in response to monitoring results of mining in Areas 1 and 2. They suggest:

- high strains (-12 to +14mm/m) and valley closure (100mm, 60 mm upsidence; with the further recommendation that these be doubled!) (Part C, p 252)
- severe disruption to the swamps over A3-LW 2. Of these WCUS4, at more than 11 ha and with high vegetation complexity, is clearly very important. **As a minimum for the swamps, WCUS4 should be fully protected.**

The monitoring of water levels in the swamps of Area 3 has given patchy results. Particularly for Lizard Creek, there are gaps in the data so it is not possible to understand the pattern of response to rainfall. It is hard to see the logic of monitoring 4 piezos in LCUS25, with one stream station in their midst but none downstream; yet only a single piezo in the swamps above the proposed LW2 with no downstream station until LCT1 which receives flow from above proposed LWs 3 and 4 also.

The monitoring of swamp levels and shallow groundwater shown in Annexure P Fig 15 does show the separation of the 2 aquifers, but the data are patchy for both data sets. Geoterra comments (p 53) that *'the proportional contribution of Lcus1 (PL1A) swamp as a proportion of the overall (non swamp) recharge and its contribution to the Lizard Creek stream flow is not able to be quantified*'. If this is not possible now, then neither will it be possible to determine what impacts mining will have. **Monitoring needs to be designed to answer the questions about the impact of subsidence effects on the surface retention and flow of water. This is surely the major issue for the catchment.**

GROUNDWATER

The EA Part A p. vii notes that the Bald Hill Claystone '*should stay intact'* and Annexure P p. x places this stratum in the constrained zone where there is horizontal delamination and thus increased horizontal flow but still hydraulic separation from the underlying Bulgo Sandstone (my emphasis). Geoterra (Annexure O, p 94) states that subsidence predictions show no change to its *semi-confining properties*. The implication is that the Bald Hill Claystone is a reliable aquitard separating Hawkesbury Sandstone aquifers from any impacts on the strata in the collapse zone above the goaf. This is a very dubious proposition. As Annexure N Fig 19 shows, the permeability of the claystone is very similar to the permeability of the strata above and below it. It is obvious from outcrop that it has many joints and small faults which are potential paths for vertical flow, especially if subsidence allows these to open. And Annexure N p 49 concludes that '*the role of the Bald Hill Claystone in reducing mining impacts has been overstated in the EA in both the interpretation of monitoring data and the implementation of the numerical model'*. If this conclusion refers to an earlier model, then the current model should be reviewed to ensure that the concerns of Pells Consulting have been fully addressed. **I reiterate the opinion I expressed in relation to Dendrobium - it is very doubtful that the Bald Hill Claystone effectively separates the aquifers in the Hawkesbury Sandstone from those below it.**

The subsidence analysis (eg Annexure P Fig 18.1 and 18.2) argues that subsidence effects will be constrained within the panel footprint. While this may be so for Area 1 and 2, and monitoring to date suggests this is so, it is surely a huge leap of faith to suggest that it will apply in Wonga West! In Wonga East, the surface above the pillars should not subside

greatly, yet in Wonga West the entire panel area will subside to close to maximum levels. The panel width: depth of cover ratio is more than 1.8 in Wonga East but less than 1.3 in Wonga West. The panels in Wonga West, at 390m, are more than twice the width of those in Wonga East (150m). The ratio of panel width: pillar width is 3.75 in Wonga East and 6.5 in Wonga West. **How will the old workings above the Wongawilli Seam somehow insulate the areas adjoining Areas 3 and 4 from damage from such large longwalls?** I suggest that there is far too little data about the impacts of multi-seam mining to accept this analysis and that **the Wonga West longwalls should not be approved in their current layout.** Note also that **the location of the gates between Areas 3 and 4 will only protect Lizard Creek if the subsidence is as low as predicted. If subsidence extends outside the panel footprint, then impacts could be considerable**. Yet presumably mining would begin at A3-LW1 and by the time monitoring indicated damage, it would be too late for adaptive management because the main mid-reach channel would have been affected.

Indeed, if the height of the collapse zone approximates the panel width, as predicted for the Dendrobium Area 3B in a well-researched analysis, then the rock column would be drained to less than 100m below the surface. This clearly would intersect the old Bulli seam workings. Given that these are acknowledged to have caused loss of flow from Lizard and Wallandoola Creeks already, the further disruption could very well be severe, with major long-term loss of flow to the catchment. The analysis (Annexure P Fig 31 and 32) shows a long-term drop in the level of the upper Hawkesbury Sandstone of more than 10m over much of the upper Lizard and Wallandoola Creek catchments. This aquifer sits at 17 - 48m below the surface in Wonga West (p 343), yet it is widely accepted that surface cracking extends to 15m. **Loss of water from the surface to depths well below the stream base across much of these upper catchments seems inevitable**. And again the problem of paucity of data means that reliable modelling of the impacts is not possible. Annexure N p A-4 notes this paucity and concludes that '*impacts of mining on baseflow cannot be predicted with confidence'.*

It is not good enough to imply that previous damage is a reason to not worry about future impacts on Lizard and Wallandoola Creeks. The Bulli Seam PAC may not have rated the streams as of special significance because of prior damage, but this refers to their value specifically as 'natural features'. Obviously the prior damage excludes them from this. However **the swamps still are features of special significance and not yet damaged sufficiently to be discounted. And the maintenance of as much flow as possible to the storage is of great importance to our water supply**. There is no guarantee that flow into subsidence cracks re-emerges downstream and there is no quantitative evidence that this in fact '*observed*' as claimed. Part C of the EA p. 319 admits that a '*potential cumulative effect of subsidence on stream flow from 1st and 2nd order streams, which may or may not contain upland swamps, is possible if the subsurface transfer of the tributary / swamp water outflows does not report back into the lower reach of the tributary before it discharges into the main 3rd order channel of Lizard or Wallandoola Creek'.* (my emphasis) I believe it is not just a 'potential cumulative impact' but a highly likely impact. **The Sydney Catchment Authority must protect water quality and ecological integrity in its Special Areas, and has a responsibility to ensure that water is not lost in this way.**

Furthermore, the reported subsidence (Annexure P, p. 35ff) suggests that impacts on groundwater may be worse than predicted:

- 3 short, narrow (86m) walls mined at Bulli Colliery, although with 230-340m of cover and relatively very wide (67m) pillars affected not just the lower Narrabeen Group strata but produced a slow response in the Bald Hill Claystone and upper Bulgo Sandstone and a 'pronounced' response in the lower Bulgo Sandstone. Surely this is a surprising response for mining that produced less than 130mm of subsidence.

- Longwalls 501 and 502 with narrower (115m) panels even than in Wonga East, subsidence of only 202mm and strains <1mm/m affected the lower Hawkesbury Sandstone aquifer (which had still not recovered to its original height by 2009, 17 years after mining). One intake below the Bulgo Sandstone showed variation *'presumably in response to rainfall recharge and infiltration into the cracked overburden following the break in the drought'*. This intake and the water level it measures are below the Bald Hill Claystone which is meant to be a hydraulic barrier!

In short, the reported changes from previous mining show that even low subsidence levels and strains can cause significant groundwater changes, and that there is every reason to believe that there is enhanced hydraulic connectivity throughout the rock column above the goaf.

SUMMARY

The company has undertaken to use adaptive management, and taken steps to reduce impacts on the major streams and some swamps. However, this strategy needs to be incorporated into approval conditions. Further, as part of any approval, the monitoring of aquifers and streams needs to be coordinated with the modelling of subsidence impacts, and the ongoing revision of predictions about both subsidence effects and impacts.

I oppose approval of the proposal in its current form, for the following reasons:

- the monitoring needs to be reviewed so that it provides useful data which will allow the impacts of mining to be separated from other influences such as variable rainfall.
- the groundwater model must consider the loss of surface water down subsidence cracks; and investigation and /or monitoring of streams needs to determine whether flow does in fact report downstream and if so, how much and how permanently water quality is compromised. These steps and full assessment of the results need to precede approval, especially for Wonga West.
- while some mining in Wonga East may be acceptable, I believe the mining in Wonga West should NOT be approved even as the basis for some modification in the future. The potential for very severe damage to this section of the catchment is too high.
- the modelling of subsidence and its impacts on groundwater seems to be optimistic, both on the basis of previous reported impacts and given the recent work on the height of the collapse zone and the inadequacy of the Bald Hill Claystone as an aquitard.

The Government needs to establish as a matter of urgency its policy on upland swamps, to resolve the question of which categories of upland swamps are expendable and which should be fully protected. I believe the OEH draft guidelines are an excellent basis for this decision.

Attch M

Threatened Frogs, Reptiles and Birds likely to be impacted by the Expansion of Gujarat NRE operations at Russell Vale

The expansion of the Gujarat NRE operations at Russell Vale Colliery have the potential to impact on a number of threatened animal species. There are threatened species likely to be impacted at both the mine entrance, where dust and noise levels will increase, and in the water catchments that will be undermined and experience cracking and subsidence.

Mine Entrance Zone: Species listed under NSW or Federal Threatened Species legislation that are expected to be impacted by the expansion.

Species name	TSC Act	EPBC Act	Importance of local population (NPWS 2002, DECC 2007)	Notes
Green and Golden Bell Frog	Endangered	Vulnerable	Highest	Potentially impacted by redirecting of Bellambi Gully Creek and disturbance of dams.
Sooty Owl	Vulnerable	Vulnerable	High	Unknown impact from dust and noise.
Spotted-tailed Quoll	Vulnerable	Endangered	High	Unknown impact from dust and noise.
Powerful Owl	Vulnerable		Lower	Unknown impact from dust and noise.
Long-nosed Potoroo	Vulnerable	Vulnerable	Highest	Unknown impact from dust and noise.

Subsidence and Cracking Zone: Species listed under NSW or Federal Threatened Species legislation that are expected to be impacted by the expansion.

Species name	TSC Act	EPBC Act	Importance of local population (NPWS 2002, DECC 2007)	Notes
Giant Burrowing Frog	Vulnerable	Vulnerable	High	Dependent on waterways and upland swamps. Critically important local population.
Littlejohn's Tree Frog	Vulnerable	Vulnerable	High	Dependent on waterways and upland swamps. Critically important local population.
Red-crowned Toadlet	Vulnerable		High	Dependant on waterways and upland swamps. Critically important local population.
Broad-headed Snake	Endangered	Vulnerable	High	Dependant on rock outcrops impacted by subsidence and cracking
Rosenberg's Goanna	Vulnerable		Moderate	Subsidence and cracking likely to impact on prey species.
Eastern Bristlebird	Endangered	Endangered	Highest	Associated with Upland Swamps.
Ground Parrot	Vulnerable		Highest	Associated with Upland Swamps
Turquoise Parrot	Vulnerable		Moderately-high	Upland Swamps important food

				resource in some years.
Masked Owl	Vulnerable		High	Draining of swamps and alteration of watercourses will impact on prey species.
Sooty Owl	Vulnerable	Vulnerable	High	Draining of swamps and alteration of watercourses will impact on prey species.
Powerful Owl	Vulnerable		Lower	Draining of swamps and alteration of watercourses will impact on prey species.
Long-nosed Potoroo	Vulnerable	Vulnerable	Highest	Important habitat is this area is upland swamps.
Spotted-tailed Quoll	Vulnerable	Endangered	High	Draining of swamps and alteration of watercourses will impact on habitat and prey species.
Eastern Pygmy-possum	Vulnerable		Moderate	Important habitat in this area is Upland Swamps.

Notes on the impacts on threatened species from the mine expansion

Giant Burrowing Frog

The Giant Burrowing Frog (*Heleioporus australiacus*) has an extremely important local population on the Woronora Plateau. In this area, habitat modelling shows the species to be strongly associated with Upland Swamps (NPWS 2002, DECC 2007) and it is dependent on this habitat type in this area. This frog most often breeds in the fish-free pools of water that exist within the Upland Swamps of the Woronora Plateau (DECC 2007). It is exactly these ponds which are likely to be drained by the expansion of the Colliery. This species is currently 'well reserved' (DECC 2007) within the Greater Sydney Area, however this is largely because of the protected population within the SCA Special Areas. **The undermining of these swamps and waterways will threaten the continued survival of the Giant Burrowing Frog in the local area as well as across its entire range**. DECC (2007) (now the Office of Environment and Heritage) quotes "Protection of Upland Swamps and associated creeks is paramount to the survival of this frog [the Giant Burrowing Frog] on the Woronora Plateau. Longwall mining under the Woronora Plateau must not result in the draining or disturbance of swamps or waterways".

Green and Golden Bell Frog

The Green and Golden Bell Frog (*Litoria aurea*) is known from around the entrance area to the Colliery. This species has declined severely across its range and therefore any remaining populations are of the highest conservation significance (DECC 2007). **Any increase in activity around the mine entrance is likely to impact on the Green and Golden Bell Frog**, including disturbance to existing dams, redirecting of waterways, increased traffic , introduction of pathogens. This species is considered to be of such conservation priority that "all existing and any newly discovered sites should be managed at a population or metapopulation level with monitoring programs established to track the dynamics and health of the population" (DECC 2007).

Littlejohn's Tree Frog

Littlejohn's Tree Frog (*Litoria littlejohni*) is a rare frog that is strongly associated with the Upland Swamps of the Woronora Plateau. The species is rarely located and population on the Woronora Plateau is of high priority (DECC 2007). **Cracking and subsidence due to longwall mining will impact on the potential survival of the species not only at a local level but across its range**.

Red-crowned Toadlet

The Red-crowned Toadlet (*Pseudophryne australis*) is another species that has a critically important population on the Woronora Plateau. Habitat modelling shows this species to be strongly associated with upper level drainage lines within the Woronora Plateau (DECC 2007) with these likely to be impacted by the cracking and subsidence associated with the mine expansion. The Red-crowned Toadlet is restricted to the Sydney Sandstone environments, with the Woronora Plateau a stronghold within this restricted area. DECC 2007 states "the catchment lands of the Woronora Plateau and Royal NP contain a large proportion of the total habitat for the Red-crowned Toadlet. Any declines from this stronghold should be viewed with concern" and "Longwall mining under the Woronora Plateau should be monitored to ensure that it down not affect the Upland Swamps of minor drainages that appear to be important for the species".

Broad-headed Snake

The Broad-headed Snake (*Hoplocephalus bungaroides*) is a further species that is restricted to the Sydney Sandstone with an extremely important population on the Woronora Plateau (DECC 2007). The propensity of this species to breed in rock piles and rock outcrops means it is likely to be impacted by the cracking and subsidence of the mine expansion. It is extremely rare and any occurrence of this snake is important. **Any impact on the Woronora Plateau population is likely to threaten the continued survival of this species both at a local level and in totality**.

Rosenberg's Goanna

Rosenberg's Goanna (*Varanus rosenbergi*) is strongly associated with the sandstone ridgetop environments of the Woronora Plateau, including the area to be undermined. The population in this area is significant as it is one of the few places within this species range that it can be regularly encountered. This goanna is known to prey upon species that are dependent on rock outcrops (DECC 2007), and the populations of these prey may well be disturbed by subsidence and cracking.

Eastern Bristlebird

The Eastern Bristlebird (*Dasyornis brachypterus*) was once common in the area to be undermined. Within the last 30 years it has declined to near extinction in the area. There have been attempts to re-establish this species in the Cataract catchment and the possibility remains that they may have remained undetected, or may re-establish naturally from the breeding population at Barren Grounds. Regardless of the above, this is a highly endangered bird that must be considered when contemplating any expansion of the underground works at Russell Vale Colliery. It is strongly associated with Upland Swamp environments in this area (DECC 2007) and **any disturbance to this habitat will threaten any population that remains or inhibit the ability of the species to re-establish in the area**.

Ground Parrot

The Ground Parrot (*Pezoporus wallicus*) was once common in the areas planned to be undermined but has declined to near extinction since the 1960's. In recent years, a small number of birds have been noted on the Woronora Plateau to the north of the area planned to be undermined by this project (Atlas of NSW Wildlife). Ground Parrots are strongly tied to Upland Swamps (DECC 2007), and any alteration of this habitat is likely to severely impact on this bird.

Turquoise Parrot

The Turquoise Parrot (*Neophema pulchella*) occasionally uses the Upland Swamps of the area to be undermined as a food resource (DECC 2007). While it is typically found in drier habitats further west, it is possible that Upland Swamps provide a critical backup food supply in times of drought. Alteration of this critical occasional food resource could potentially have an extremely serious impact on this species.

Masked Owl

The Masked Owl (*Tyto novaehollandiae*) is rare in the region and is known to use the creekline vegetation of the area to be undermined. Any alteration of this habitat, or that of the key prey species of this owl, are likely to impact on the local population.

Powerful Owl

The Powerful Owl (*Ninox strenua*) is also known to use creekline vegetation of the area to be undermined. Although the local population is not considered overly important to the global conservation of the species, it is another example of a threatened species that would be affected locally, either by direct impact on its habitat or that of its prey.

Sooty Owl

The Sooty Owl (*Tyto tenebricosa*) is locally common in the Illawarra and is known to use the creekline vegetation of the area to be undermined. Any alteration of this habitat, or that of the key prey species of this owl, are likely to impact on the local population. The local population is very important to the conservation of the species overall.

Long-nosed Potoroo

The Long-nosed Potoroo (*Potorous tridactylus*) is known to have once inhabited the area to be undermined (DECC 2007) though there are no recent records. It is extremely rare in the region and any population remaining is of very high conservation significance. This potoroo was once known to be found in the Upland Swamps of this area, so any impact on these swamps will affect this species.

Spotted-tailed Quoll

The Spotted-tailed Quoll (*Dasyurus maculatus*) is rare in the region and in the area to be undermined (DECC 2007). This species will prey on animals that are dependent on Upland Swamps and creekline environment, such as the Swamp Rat (*Rattus lutreolus*) and Long-nosed Bandicoot (*Perameles nasuta*). Any impact on these environments is likely to impact on the Spotted-tailed Quoll in the local area.

Eastern Pygmy-possum

The Eastern Pygmy-possum (*Cercartetus nanus*) is relatively common in the area to be undermined, with a large amount of high quality habitat occurring. Some of the best habitat for this species is the Upland Swamps found on the Woronora Plateau (DECC 2007). Any disruption of these swamps will impact on the local population of this possum. The local population of the Eastern Pygmy-possum is considered to be very important at a national scale, so significant impacts on it can be considered to impact the long-term survival prospects of the species as a whole.

References

NPWS (2002) *Fauna of the Illawarra Escarpment, Coastal Plain and Plateau*. National Parks and Wildlife Service, August 2002.

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