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**TRANSCRIPT OF PROCEEDINGS**

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TRANSCRIPT IN CONFIDENCE

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O/N H-998106

**INDEPENDENT PLANNING COMMISSION**

**PUBLIC HEARING**

**RE: HUME COAL PROJECT AND BERRIMA RAIL PROJECT**

**PANEL:**

**PROF CHRIS FELL  
ANNELISE TUOR  
GEOFF SHARROCK  
GEORGE GATES**

**ASSISTING PANEL:**

**DAVID KOPPERS  
BRAD JAMES  
STEPHEN FREE SC  
JANE TAYLOR**

**LOCATION:**

**MOSS VALE SERVICES CLUB  
ARGYLE STREET AND YARRAWA STREETS  
MOSS VALE, NEW SOUTH WALES**

**DATE:**

**10.01 AM, WEDNESDAY, 27 FEBRUARY 2019**

**Continued from 26.2.19**

**DAY 2**

PROF C. FELL: Good morning. I would ask if you would take your seats, please. I do have to make a few brief comments. Thanks to our legal adviser they're mercifully shorter than yesterdays. Before we begin, I would like to acknowledge the traditional owners of the land on which we meet. I would like also to pay  
5 respects to their elders, past and present, and to the elders from other communities that may be here today. My name is Professor Chris Fell. I'm chair of this Independent Planning Commission New South Wales panel, which has been appointed to conduct a public hearing and consider the project as set out on the Minister's request. You can find more information about this in the transcript of  
10 yesterday's hearing.

Joining me are my fellow commissioners, Annelise Tuor, Geoff Sharrock and George Gates. We are also supported by Stephen Free SC, along with Jane Taylor, who are counsel assisting the Commission panel. We also have secretary members  
15 down the front, David and Brad, who you should speak briefly if you wish to provide audio-visual material. Today's ground rules – before we get to our first registered speaker, I would like to raise some ground rules, that we respect everyone taking part in the ..... the hearing today is not ..... I will not take questions from the floor. I will not permit interjections. Our aim is to provide a maximum opportunity for people to  
20 speak and be heard by the Commission. We ask speakers today to refrain from making offensive, threatening or defamatory statements, as per our guidelines. Many people find public speaking difficult. You may not agree everything you hear.

Each speaker has the right to be treated with respect and heard in silence. Today's  
25 focus is on public consultation. The panel is here to listen, not to comment. We won't ask questions or seek clarification. It will be most beneficial if your presentation is focused on issues of concern to you. It's important that everyone interested to speak receives a fair share of time. I will enforce timekeeping rules with the assistance of counsel assisting. As chair, I reserve the right to ..... on time if  
30 considered appropriate.

A warning bell will sound one minute before the speaker's block of time is up, and again when it runs out. Please respect these time limits. I will strive to stick to our schedule today. Some speakers don't show or decide not to speak. If you know  
35 someone who will not be attending, please advise either David or Brad in the secretary area. If you would like to project anything on the screen, please – David or Brad before your presentation. If you have a copy of your presentation, we appreciate if you will provide a copy to a secretary after you speak. Please note that any information that your give us may be made public. The Commission's privacy  
40 statement governs our approach to your information. If you would like to see a copy of this, you can obtain from a secretary or from the website. Finally, I would ask that everyone present turn your mobile phones to silent. Thank you. We will now call the first speaker.

45 MR S. FREE SC: Thank you. Can Clayton Hairs please come forward. He's our first speaker.

MR C. HAIRS: Good morning, Commissioners. My name is Clayton Hairs. I'm not an expert in what I'm about to talk about, but – my subject is wind. But I am a person who has done some investigations and I aim to show that the applicant has been subjected to ..... of data relating to wind. I – this is the area in question. X  
5 marks the spot aboveground working to the coal ..... toxic spoil will be placed. Here's the town of Berrima. The new Berrima rail would be here. I live in an half an acre property just north of Berrima.

10 My wife runs the Aurora Steiner School where all these children come from. The ..... at our property, one to four years old, and there's 80 children at our property over four occasions a week. Right over here where the yellow mark is, is 197 school children aged between five and 12 years of age that attend at Berrima Public School. New Berrima is important in this equation because it's the lowest socioeconomic area in the whole of the Southern Highlands. What I did is I ..... property complied  
15 use and I had a suspicion that the prevailing winds would come from the west and south-west, ie, I contacted the Bureau of Meteorology and got information from three stations, high range, Bowral and Moss Vale.

20 Moss Vale is the one that the applicants used. I'll show you that data here. This is figure 12.1 according to the applicants' EIS. There's an interesting couple things going on. When I got my missive that I received from the Bureau of Meteorology, the ..... what's interesting here – the first thing that I noticed was that the maximum wind speed, eight to 17 on what is shown on the EIS versus over 40 on mine. I started to question what's going on, why is there a difference, and the answer is  
25 because of the unit of measurement that's been used. Now, I at no point in the process of applying for this data, was actually asked what unit of measurement I would like to receive the data in so I need to make the assumption that the same was not asked of the applicant.

30 They, therefore, in my opinion, came to this figure through metres per second and I have to ask the question why. My answer is that it was one of perception. The reason is that metres per second for the layman is an unknown quantity. Kilometres per hour is a very known quantity; we drive our cars every single day. Eight to 17, looking a very innocuous, small figure, versus over 40. If we then look at the wind  
35 blows ..... it's very interesting that they've used, in this 12.1, data that completely neglects the windiest time of the year, that's July, August and September. Every single person in this room who's lived in the Southern Highlands will attest to that fact.

40 We look also interestingly in the year 2014 the company claims to have had problems with their Hume 1 weather station. Interestingly, it happens at the exact same time of the year, July, August and September, the windiest times of the year. If we then look at the data that the company has given, you will look at – notice the wind blows and where the prevailing wind is according to – this is the ..... data. This  
45 is from their own issued weather station. 40 per cent of all winds up on the west are from the south-west according to their data. If I just take one time pointing the

station which I used which – by the way, I need to point out what the company has said at this point. They say that:

5                   *Of the reviewed monitoring locations, the BoM, Moss Vale, returned the longest period of continuous monitoring data.*

Commissioners, this is an outright false statement. There is a weather station that has been at Harry's Drive in Bowral for 40 years. It's given data for 40 years. The company has been very selective in the use of data. They've only used one year. If  
10 we look quickly through the wind directions - - -

MR .....: .....

MR HAIRS: Thank you. This is over a three hour time span. These ..... the wind  
15 blows coming directly from the west at 6 am, south-west going directly over New Berrima, as you can see, and Berrima. There's a whole lot of these but unfortunately I'm going to be a little bit constrained by time here. I have actually submitted these with same to the Commission.

20 PROF FELL: Thank you.

MR HAIRS: So there's flight centres' data there but I'll just randomly pull out another one out of the hat and you'll notice that the west and the south-west is very, very ..... with wind going directly Berrima, the school kids I've just spoken about and  
25 New Berrima. Now, as I've said, I'm not an expert. I don't know – I can't talk to particular matters and I can't talk to the exact manner of that but what I would actually ask the question to you to investigate is the selectivity of data that the applicant has been involved in. Selective to portray all is well when in fact the reality is quite a different matter. Thank you for your time.

30 PROF FELL: Thank you very much. And you made available these maps?

MR HAIRS: I have, sir. Yes.

35 PROF FELL: Thank you.

MR HAIRS: Not the maps as much as just the data itself.

40 PROF FELL: Okay.

MR HAIRS: Yes.

PROF FELL: Those notes will be very useful to us too.

45 MR HAIRS: Okay.

PROF FELL: Just small copies.

MR HAIRS: Yes. No problems.

PROF FELL: Thank you very much.

5 MR HAIRS: Thank you.

MR FREE: Thank you, Mr Hairs. John Mallet is the next speaker.

10 MR C. MALLET: Good morning. I would like to thank the Commission for the opportunity to speak today. My name is Chris Mallet. I strongly oppose the Hume Coal POSCO Mine. I live on the beautiful Wingecarribee River at the edge of Berrima with my family, just approximately 2.3 kilometres from the proposed mine head and huge industrial complex. I would like to speak on water and micropore coal dust. Regarding water, I'd like to start by speaking about the Ogallala Aquifer  
15 in the United States, one of the largest, most studied aquifers in the world, stretching under eight states. The world's water experts said, for 40 years, pump away for two to three hundred years with no problem so they transformed the dry western plains into a food bowl for the world.

20 80 years on we're told within 10 years or less it will be completely dry. We need to learn from these mistakes. The new international study released by NASA shows declines in groundwater resources globally. This should alert us to the pressing need to manage groundwater resources sustainably. I have been interested in the water catchment and effects from mining for four years, since we heard about the terrible  
25 issues with the old Boral Mine in our river close to our home. Two weeks ago I attended the government expo water panel meeting in Picton where I spoke and listened to the harrowing stories from all the stock stakeholders from around the catchment about rivers drying and the pollution due to mining.

30 Seven out of the 14 NSW rivers are now dry from mining. I have heard government agencies such as the EPA, NSW Water, scientific water experts and stakeholders all speaking for the same play book, about the catastrophic state of our Sydney water catchment. I understand our property bore, our neighbours bore and 118 bores in my area will dry. It is very clear and hardly rocket science to see that the Sydney water  
35 catchment is running on empty and could end up dry like Cape Town. Restarting the desalination plant is like putting a band aid on the cancerous open wound as it only produces 250 million litres a day.

This hardly covers the losses from the eight major polluting mines in the catchment.  
40 The interim expert water panel report, just released, says that Dendrobium Mine is losing over seven million litres a day down the mine forever. The water catchment in 1944 produced 280 megalitres. Now it's down to 80 in the last year before the drought. The Tallowa Dam on the Shoalhaven River is used 75 per cent full of pump water to the Wingecarribee Dam and down the local Wingecarribee River to try to  
45 maintain the Warragamba Dam at 60 per cent for the towns' drinking water. Today, however, if you check this morning the Tallowa Dam is down to two and a half per cent.

PROF FELL: Could you – could you bring your discussion - - -

MR MALLETT: Yes. I'm just finishing now. The Tallowa Dam. The old Boral Mine is still spewing the two million litres of heavy metals of international  
5 significance every day into our local river. 120 times above the recommended drinking water levels into the river flows onto Sydney's Warragamba Dam, supplying drinking water - - -

PROF FELL: I think - - -

10

MR MALLETT: - - - to the 6.5 million residents. The proposed Hume Coal Mine, 42 square kilometres, would add significant polluted groundwater from toxic tailings and polluted surface water run-off, would seep into the catchment, add to the toxic Wingecarribee River pollution, as we know from Dr Ian Wright's report. Regarding  
15 the micro coal dust, on my way, two weeks ago, to the expert water panel meeting in Picton I drove along the Mereworth historic property, blowing orange topsoil away on the south-westerly prevailing winds. The property has been mismanaged, over-grazed, ending up with intense feedlot, looking like a desert. This red, orange dust landed on my house roof and across Berrima. This is the same spot - - -

20

PROF FELL: 10 seconds, please.

MR MALLETT: This is the same spot where the Hume Coal's six storey high, 800 metre long coal stockpile and coal loaders and industrial blight will be located. So  
25 on a strong south-west prevailing winds micropore dust will blow from the stockpile - - -

PROF FELL: I'm sorry. I am going to have to ask you to - - -

30 MR MALLETT: - - - and contaminate - - -

PROF FELL: In courtesy to other speakers, to stop.

MR MALLETT: Yes. Thank you.  
35

PROF FELL: You're allowed 10 more words, okay.

MR MALLETT: Thank you. If the precautionary - - -

40 PROF FELL: Choose them wisely.

MR MALLETT: If the precautionary is used, the mine must not proceed. Thank you.

PROF FELL: Thank you.

45

MR FREE: Mr Mallet - - -

MR GATES: Chris, before you sit down just a question to you.

MR MALLET: Certainly.

5 MR GATES: You indicated that you'd like to see surface water and groundwater  
managed sustainably. The Department of Industry – Water has a sustainable  
extraction level for the aquifer in this area. The mine has been purchasing water  
entitlements from landholders who are willing to sell those water entitlements. Do  
10 you have the same issues with whether the mine extracts the water or whether the  
landholder extracts the water? Have you got the same feelings for either one  
extracting the water?

MR MALLET: I think it's a massive problem. I don't believe that Hume Coal have  
15 the full allocation that they need. I believe they need 20 billion litres during the  
course of the mine to wash the coal and then pump it down into the mine. All the  
local farmers, the beautiful area along the side of the river, which is a wildlife reserve  
where we are, will all die if – and the trees will all die if the water table is dropped  
and we cannot access any water.

20 MR GATES: Thank you.

PROF FELL: Thank you.

MR FREE: Thank you, Mr Mallet. Julian Brophy is our next speaker.  
25

MR J. BROPHY: Good morning, commissioners. My partner and I – my name is  
Julian Brophy. My partner and I live on the Wingecarribee River in Berrima. When  
most Australians have never seen one in the wild, we were incredibly fortunate to  
enjoy the sight of platypus playing in the river in our backyard. It's a unique honour.  
30 But my comments today are not just about me or my partner, the people of Berrima,  
or even the Southern Highlands. There is a lot more at stake here. This river with its  
platypus is part of the Sydney drinking water catchment, part of the surface water  
system in which Hume Coal proposes an underground mine on an unprecedented  
scale in the Southern Highlands.

35  
What is before you, commissioners, is an application to build the first new greenfield  
coal mine in decades located in its entirety within the Sydney drinking water  
catchment. I will let that sit with you for a few seconds. It's a bold plan, isn't it?  
But if you want planning approval to build the first new coal mine in the Sydney  
40 drinking water catchment in decades, then it is only right that such a proposal should  
be subjected to the most stringent assessment. This is not a proposed coal mine in  
the middle of nowhere, it's a plan for a mine located within the single most important  
natural asset in New South Wales: the water supply for 4.8 million people – a plan  
for a coal mine located in the single most important natural asset of New South  
45 Wales.

In 2014, the New South Wales Chief Scientist of New South Wales noted:

*Our catchment is the only publicly-owned drinking water catchment in the world where coal mining is permitted.*

5 Do we know something the rest of the world doesn't? The evidence shows we do not. At least six operating and mothballed coal mines located within the catchment are already causing significant impacts on our water supply and quality. Precious rainwater that should be going into our rivers, our dams, our water storages is instead going into polluted mining voids underground and then making its way back into the drinking water supply. That is the current paradigm.

10 So if you're going to consider approving another coal mine in the water catchment, then you better make sure it doesn't go wrong, as other coal mines have, and we will get to that. The Department of Planning has identified the present threat posed by an untested mining technique proposed by Hume Coal and the unacceptable impacts on ground and surface water that may flow if the project were approved:

*As a result, the precautionary principle is triggered and the project as currently proposed should not be considered an Ecologically Sustainable Development.*

20 The precautionary principle is the foundation of Ecologically Sustainable Development and our planning system in New South Wales. It states:

25 *When an activity causes some threat or harm to the public or the environment, general precautionary measures should be taken.*

The applicant has had since July 2011 to prosecute its case for an approval of this mine, including demonstrating it meets the baseline test for Ecologically Sustainable Development. They have failed to do so. The response to their work by the Department of Planning is blunt:

30 *Both the Department and the Department of Industry – Water consider that the predicted drawdown impacts on this aquifer would be the most significant for any mining project that has ever been assessed in New South Wales.*

35 118 privately-owned water bores directly affected by drawdown and the department expressing significant concern about the potential of those impacts to be able to be mitigated. To the risks presented by the Hume Coal proposal to the surface water systems of the local area – the catchment – the drinking water catchment of Sydney, the department goes on:

40 *The combination of an untested mining method and an unconventional method of storing large quantities of mine water underground is likely to result in serious operational safety risks. The department considers those risks may lead to the transfer of additional mine water to the surface and a need to discharge into water courses.*



This is really the crux of why the precautionary principle must be employed in this instance. You want to build a mine in an irreplaceable water catchment? Then you have to prove beyond doubt that nothing will go wrong, and the applicant has failed to do so. To stop terrible things from happening is the reason we have the  
5 precautionary principle, when we don't have the information to guarantee that they won't happen in the future. And bad things do happen. They're happening in this catchment right now, right on this same Wingecarribee River where there's platypus and it's waters that wind right into the Warragamba reservoir and drinking water supply of 4.8 million people.

10 And for those who think this river is not critical to the supply of Sydney's water system, perhaps the following is instructive: as we sit here today, another 20 megalitres will make its way up the river, as they have done for weeks prior and weeks following today, from the Shoalhaven system. That is to replenish the falling  
15 water supply of Warragamba Dam. And yet despite this pivotal role as an emergency transfer for water in times of drought, we have already had a coal mining-generated pollution crisis on the Wingecarribee from the Berrima Colliery which has resulted in millions of litres of heavy-metal-contaminated water flowing into our catchment at one point killing almost all water life for a kilometre downstream.

20 It was described by Dr Ian Wright as "possibly the worst coal and mine water pollution event associated with coal mines in the Sydney Basin for 20 years." That's the problem with a mine that is already here and which will take years to rectify, even if that proves technically possible. If ever there were a case for the  
25 precautionary principle to be employed, this is it. An irreplaceable water catchment, a drinking supply already suffering impacts from current and past coal mining, the New South Wales Auditor-General reporting that:

30 *Salinity from coal mining is having a cumulative and possible accelerated impact in the water catchment –*

And a proposal – the Hume Coal proposal for a greenfield coal mine and system of mining that government agencies have said presents an unacceptable risk to the  
35 ground and surface water systems. Commissioners, I acknowledge the difficult job ahead of you. You must balance the planning needs of the applicant and the needs of the community in which the development is proposed to occur. However, in this instance, the stakes are unimaginably greater. You must balance the protection of an irreplaceable natural resource against a proposal the Planning Department has said is so risky, so deficient that the precautionary principle must be employed. Thank you.

40 PROF FELL: Thank you.

MR FREE: Thank you. The next speaker is Robert James Parker.

45 MR R.J. PARKER: Thank you for giving me the opportunity to make this presentation. I will just mention from the outset that this submission is restricted to matters dealing with carbon emissions because other objectors are dealing quite well

with environmental factors and hydrological impacts or other environmental factors. POSCO intend to produce a saleable product of about 39 million tonnes of coal over about a 20-year period. They state in a 2015 report that:

5            *Climate change which is caused by the burning of these fossil fuels is a  
                 megatrend affecting all corners of society. The greenhouse gas emissions from  
                 this coal will directly threaten the future of our children, grandchildren and  
                 future generations through the impact of greenhouse gas emissions leading to  
                 dangerous global warming.*

10

So POSCO have declared right upfront in their annual reports that it is a megatrend affecting all parts of society. Now, the recent decision by the Chief Judge of the New South Wales Land and Environment Court required that the accounting of all scope 1, 2 and 3 emissions to fully include for the emissions associated with their  
15 final consumption or combustion. Despite table 1 of appendix K – this is of the Hume Coal report – stating that scope 3 emissions includes downstream emissions from the end use, it would appear from the values listed in tables 11.3 and 11.4 that this is not the case, or that perhaps I’m misunderstanding arithmetic.

20

In any event, the final consumption of the product based upon 39 million tonnes of saleable product would appear to require approximately an additional 102 million tonnes of carbon dioxide equivalent to be allowed for. This is over and above the proponent’s existing assessment of 7.9 million tonnes of carbon dioxide equivalent and on average about 1 per cent of Australia’s greenhouse gas emissions. The  
25 company knows the criticality of these greenhouse gas emissions because in November 2009, their owner South Korea’s POSCO declared plans to eventually halt carbon emissions by switching to a hydrogen-based steelmaking process from 2021. That’s only five years away.

30

In 2009, Choi Doo-Jin, a senior spokesman for POSCO stated that:

*We are currently studying the hydrogen steelmaking process. We hope to get  
hydrogen gas from small or mid-size nuclear reactors which are under study by  
us.*

35

POSCO officials said the steelmaker is considering supplying hydrogen gas from its smart nuclear reactors and it was looking for other consortium partners to assist. The stated ultimate goal is to produce steel using hydrogen produced by nuclear reactors to replace this coal, and Japan and China have very advanced programs going down  
40 that route and SSAB of Sweden is currently spending around about US\$200 billion equivalent on that program.

45

They’ve got viable options to get into the game but the unfortunate part is that while we maintain cheap coking coal mining in Australia, the incentive isn’t there. The rejection of this particular mine would prod them a bit and I recommend that it be rejected, in particular on the grounds that the Chief Justice of the New South Wales

Land and Environment Court's determination that scope 3 emissions should be taken into account. Thank you.

PROF FELL: Thank you.

5

MR FREE: Thank you, Mr Parker. Virginia Ellsmore is the next speaker.

MS V. ELSSMORE: Good morning, Commissioners. My name is Virginia Ellsmore, as you just heard. I'm – have a rural property in the Hume Coal lease area.

10

MR .....: Can't hear you.

MS .....: We can't hear you.

15 MS ELLSMORE: You can't hear me?

MS .....: No.

MS ELLSMORE: Should I go down a bit? Is that better?

20

MR .....: Much better.

MS ELLSMORE: Okay. I will start again. I have a rural property in the Hume Coal lease area. This property has been owned by my family since the 1830s so I inherited not only my farm and an unexplainable deep love for this land, but also the personal responsibilities that go with this type of family history, which is to protect it for following generations, hopefully leaving the land better than I found it. When I see the state of POSCOs Mereworth property, I feel total disgust. This once fine property now a dustbowl full of dead thistles and very much alive serrated tussocks. My initial reaction to hearing about this mine proposal was one of horror. How could anyone think to mine in my Southern Highlands? What on earth would my father have said to this threat to the farm he, his father, and his father before him had worked, loved and sacrificed to keep. I still remember the last words to me and my brother, "Never to be sold."

35

It breaks my heart to think of the destruction a coal mine will wrought upon the land. I then moved on to serious anger which in turn emboldened me to join with others to fight this proposal which we had been doing for nine years. But a strange thing happened. I was starting to feel a type of gratitude for this unthinkable abomination, that it disturbed my existence and affected most of my thoughts. You may ask why, "Has fighting a coal mine sent her crazy?" Well, almost. But, no, it's because I became part of a community which formed a committee of caring people with one purpose, to stop this mine destroying our environment. Bad sometimes begets good.

45 So we have fought this war, sometimes losing battle, sometimes winning them. All the time forming deeper and deeper bonds, supporting one another through these many down days. The effects on members of the community and landowners within

the lease area tell a study of the feelings of hopelessness leading to depression, listlessness, from the inability to make decisions due to the huge amount of uncertainty we have in a future. Can you imagine eight years of that gnawing type of stress that surfaces many times a day, and the feeling of fear that permeates your subconscious. And you're not sure what's wrong with you, that you shouldn't feel this way, but you do. Some even resort to alcohol or medication to bear these feelings.

We feel marginalised by a system which makes the mining industry assume they have the right to ride roughshod over us, throwing money around to sporting groups, charities and local media; dividing the community, while denigrating any opposition; calling us either greenie activists one day, or wealthy selfish landowners destroying jobs and development the next, all the while ignoring the fact that it is the community as a whole which does not want mining in this area, implying that the mine is wanted.

I feel after listening to the gentleman from the Chamber of Commerce yesterday that there is a forgotten group in the Highlands. They are the people who work to support our farms, agricultural endeavours, and also our tourist industries. He talks about jobs, but what about the jobs lost due to this mine? These denigrated so called wealth landowners who create a lot of employment, for example, fences, builders, haulage contractors, farm managers, various farmworkers, landscapers, vets, cattle yard contractors, farm supply traders, garden helpers, sand and gravel companies.

The list goes on and on before we even get to the workers and businesses involved in tourism. No jobs on a property with no water. Tourists don't visit dead gardens and empty creeks and dried up fields. And surprise, surprise, a dirty coal mine with attendant infrastructure – perfect backdrop for a wedding. We will win this – excuse me – we will win this war because the majority of the community does not give it a social license. And I say to POSCO Hume Coal, not only is the science against this product, you have no social license and you never will. You have treated the landowners in the lease area with disdain, and I'm being polite.

Our water and future health of our environment must be protected. Lastly, I would also ask the question of what make good means regards to loss of water. I have a creek running through my land. How do you make good that water? I only have tank water for my house, which will be full of 2.5 particle matter. Will Hume Coal supply me with drinking water? How do you make good the inherent moisture within the soil which is lost with the lowering of the water table? In a country becoming drier and drier with serious soil salinity and abysmal action on water policy, where is this huge amount of make good water going to come from? POSCO will not mine here because too many of us, newcomers and old hands, have this unexplainable love of our land, and we will overcome. Thank you.

PROF FELL: Thank you.

MR FREE: Thank you. Doug Graham is the next speaker.

MR D. GRAHAM: This will probably be one of the shorter ones of the day, but – my name is Dough Graham. I’ve farmed in this area for 35 years. I also have a mechanical background. I have farmed within this lease area, 349, for 26 years, and have lived and raised a family of five children there. My issue is not with the coal mine itself. My issues are with the risk and probabilities that are associated with this particular project. My potential concern is the potential loss of our groundwater asset and the consequences and effects to the ecology, water, food security on a regional and generational level. As you should all be aware that this project will leave, if approved, a legacy that, in my opinion, will be liability to the future ecology and affect the future generations of the same.

The decision made will, of course, be judged in hindsight by future generations, and as I’ve requested continually, the issue of responsibility and accountability in regard to the long-term effects to our ecology economy and remediation of this project with no reasonable or logical response yet from either company or the government minister. The property that we’re involved with, which is my employment, is approximately 520 acres of undulating topography with no creek or permanent stream running through the holding. We rely entirely on rainfall, bores and dams to supply us with stock crop, domestic water needs, current and potential.

As this current ongoing dry period continues – and, on a personal basis, this is the worst it has been since the 80s – it only reinforces the need for a groundwater resource. As with dry dams and no rain, it has exemplified for such a resource of which we continually utilise for our day-to-day existence. We in this area are very aware of increasing needs of the community in regard to sustainability, and nothing presented to this point by POSCO representative have yet given me a sense of security.

I have been involved in conversation with POSCO when they first came to the area, and they were represent as Cockatoo Coal and they told us all they were an Australian company. This was purchased from Anglo American as a lease of which enveloped all the area as 349 plus extra stuff down Canyonleigh Road which has since been disregarded. I’ve always been in contact with POSCO Hume Coal or their members, either on a personal level or as a community member/lease resident on their WAG committee from their conception of the WAG committee to the present. Within this committee there has been many questions raised regarding operation and effect with little reasonable response regarding what I consider to be the key issue of water security.

So basically what we’ve been explained is how the coal is going to be extracted, but not the replacement of the water or the make good clause. Now, I’ve had three meetings with Hume Coal and I’ve been through four managers with Hume Coal and POSCO. We’re on our fourth now. And while there – within all these three meetings there has never been a proposal to make good the water that we are going to lose. Now, we have a bore that pumps about 30 litres a second. They have had three meetings and no reasonable response. There is no answer to the impending loss of the water resource and the impact on our bore would be detrimental to any

operation that is either now or in the future. I would just like to – just in closing, anyway, just to make it short, I would like to request that there is much thought for the future of this area before critical and non-refundable decisions are made. Thank you.

5

MR GATES: Doug. Doug.

PROF FELL: Excuse me.

10 MR GATES: Doug, questions. You mentioned you had one of the better bores at 30 litres a second.

MR GRAHAM: Well, I don't know if it's one of the better ones, but our particular bore is 30 litres a second and it's – I drink the water straight out of the bore.

15

MR GATES: Good. Do you happen to know what your ..... water entitlement is and how much of that do you generally use?

20 MR GRAHAM: 265, and it's on a seasonal use and at the moment we would use everything.

MR GATES: And – 265?

25 MR GRAHAM: Yes.

MR GATES: Megalitres a year. And have you noticed that the water levels are dropping in recent seasons?

30 MR GRAHAM: They don't fluctuate too much. I mean, I dipped the bore yesterday and there has only been probably less than half a metre change in the last 10 years. And that – well, that's another point I should raise too. I mean, our standing water level is less than 40 normally in this particular bore, and it's down as a record as – you know, on proposal is the standing water level is 68 metres. I can't figure the disparity between those two. I mean, we've got a factual record that I  
35 have, and I've always been open to Hume. I mean, I allow them on the place all the time. I've actually put divers down that they record. Yes, so that's another issue which I will have to raise with someone else, not this committee.

40 MR GATES: Great. Thanks very much.

MR GRAHAM: Thank you.

PROF FELL: Thank you.

45 MR FREE: Thank you, Mr Graham. Samantha Bailey is the next speaker.

MS S. BAILEY: Thank you. My name is Samantha Bailey. I am a resident of Sutton Forrest. I'm a commercial fit out and refurb project manager and I'm also the current president of Sustainable Southern Highlands Inc. Thank you for the opportunity to speak today. Sustainable is a not for profit community association established in 2015, primarily to fund legitimate independent professional research into the pertinent science facts and potential outcomes of proposed initiatives within the Highlands, the major obviously being the proposed Hume Coal Mining Project. Sustainable is supported by individuals and businesses who are similarly concerned that decision making critical to the sustainability of the Highlands' environment, economy and community needs to be based on facts supported by research.

We have raised funds within the community to fund research and studies related to groundwater, pollution, heritage impact, water modelling, potential contaminants, hydrogeology, and more, a cost of over \$2000. There are some points that we would like to briefly comment on in order that the Commission have a clear understanding of some of the concerns within our community. It has become apparent that there remain significant concerns around the safety of the mining method proposed by Hume Coal.

We note that this appears to be a view shared by experts, including Professor Galvin, and we are particularly concerned that Hume Coal has elected to not share their risk assessment, not just with the community, but also not with the Department of Planning, nor the Commission. Given that their proposed method has not been used elsewhere despite their assertions to the contrary, and that the department's own expert has stated that it in fact appears to be pillar extraction, the most hazardous form of underground mining that there is, this would seem to be of paramount importance. The community have grave concerns about the potential permanent and irreversible impacts to the aquifer and the probable resultant loss of groundwater.

Similarly, we do not believe that they have provided sufficient nor satisfactory explanations as to exactly how they will manage the potential contaminants in the slurry they are proposing to pump back into the mine voids and the subsequent impact on the aquifer and local bores, or the ongoing monitoring of this. We were particularly interested to note in one of the publically available transcripts that their peer review has been done in accordance with the Murray-Darling Basin Guidelines 2001 and not the Australian Groundwater Flood Modelling Guidelines, which given recent events on the Murray-Darling, would warrant alarm bells.

And it is, of course, particularly pertinent that we are part of the water catchment area and we are fairly sure that all in this room, and indeed the wider Sydney area, would be somewhat concerned as what could potentially end up in their water. Hume Coal have little or no respect for the community and authorities. Evidenced – just one of their recent Facebook posts, deliberately worded to incite division within the community, and it is of particular interest to note that a respondent on that thread commented – and at this point, on legal advice, I must apologise and point out these are not my words – I quote, “The Department of Planning is a complete wank.” A

comment that the Hume Coal Facebook administrator extraordinarily chose to like. A screenshot has been provided.

5 Perhaps the most contentious issue of all is make good. Our understanding is that  
Hume Coal will be attempting to enter into agreements with landowners based on  
what could potentially happen to their bore in the forthcoming five year periods. No  
one in their right mind would agree to enter into an agreement of this nature, and that  
make good will be made on the basis of landowners electing to opt in. They will  
10 have to deal with 70-plus landowners in this regard, and judging by their past record  
and poor relationship with directed affected landowners, that is not something that  
will go smoothly nor well. Notwithstanding the rules that the Department of Water  
has around make good to the aquifer, it is also abundantly clear from the transcripts  
that there are serious concerns about Hume Coal's ability to do that. The New South  
15 Wales Government owns the water resource on behalf of the people and is  
responsible for its management.

Our understanding is that the data on which Hume Coal has relied in putting its mine  
plan together has not been fully shared with those responsible for making the call on  
20 whether to approve the project or not. So it's difficult to understand how on earth  
approval could be given without having full information. Hume Coal's appetite for  
risk would seem to be of – I am closing – far higher than the community's, and there  
are many in the community who strongly believe that this mine will have significant  
and long-term adverse effects on the Highlands, economically, socially and  
25 environmentally.

In the transcript of the Commission's meeting with the Department of Planning and  
Environment, we've noted that a closing comment was made by yourself, Professor  
Fell, that the Commission and department were both in the same game, and that's  
30 doing it right for the state. We sincerely hope that you will do what is right for the  
state and uphold the department's recommendation that this mine is not in the public  
interest and should not approved. Thank you.

PROF FELL: Thank you very much.

35 MR FREE: Thank you, Ms Bailey. Can John Lee come forward please.

MR J. LEE: Good morning, Commissioner and the panel. John Lee is my name.  
I'm a hydrogeologist. I have extensive experience. I represent the landholders, and  
particularly the water access licence holders in the region particularly affected by the  
40 mining proposal. I have worked in the region for over 25 years on several hundred  
private projects and have closely been involved in developing a clear understanding  
of the geological and hydrogeological trials of groundwater over a wide area. The  
battle here in this project is ..... on the existing, privately-owned water resource rights  
versus corporate efforts to obtain the rights to mine and extract the coal at the  
45 expense of the groundwater users.



An important irrigation bore located at Rosedale/Sutton Forest is cited in this brief presentation as an example of the significant impacts and consequence of mining proposal. This slide 1 shows the location of the Rosedale bore in the southern part of the project area. The bore lies adjacent to the freeway. It has a large centre pivot on it. In the proposal by Hume Coal in their latest groundwater model, they expect a drawdown in this bore of 29 metres. The bore will be intersected by mining and its proposal is either to replace it or deepen it or modify it. Now, this shot shows a photo of the original pump testing conducted in 2005 where the bore was pumped at over 40 litres a second. I will just go now – it's important to get a bit of an understanding of the way most bores in the region are constructed.

This slide shows the geology of the stratigraphy and in this particular bore, there is an aggregate yield which is well in excess of 50 litres per second, maybe up to 100 litres per second. The bore intersected a major fracture zone in this area and the current pump is set at about 40 metres. The geology here is comprised of predominantly sandstone, shale on the top and the main aquifer sequence about 50 metres thick in the lower part of the Hawkesbury Sandstone. The coal immediately lies below the sandstone and we have aquifers here shown in blue, each of which is maybe 30 to 40 litres per second. The proposal is, of course, to mine the coal which lies directly beneath this sandstone. In most coal mines in the region, between the coal and the sandstone there is a thick and permeable layer of shale.

We speak to this particular test: in a 24-hour period at a rate of 42 litres a second, the pump – the water level drew down only 8.7 metres. This slide shows the position of the bore in relation to the mining panels. In this particular slide, which is difficult to read, we have 94 bores which are going to be impacted by this proposal and the average – sorry; the total time for full recovery is 76 years down to – back to a two-metre level which is the trigger level for the AIP to be impacted. In this particular project, only two test locations have been conducted where formal aquifer tests have been undertaken. One test was a 24-hour test and the other a 72-hour test.

I might add that this particular bore at Rosedale has the highest groundwater allocation of any bore in the Southern Highlands. It has an allocation of 400 megalitres. In order to get any more than 100 megalitres of water, any irrigator these days has to conduct a seven-day test. And here we are for a major project – a measly test of 72 hours. Hume Coal have provided to landholders a document as shown here where what they're proposing is certain information which in my mind is erroneous. In this particular case, we know that the static water level in the bore is only 12 metres and yet they're saying that the initial static water level is 51 metres. I don't know how this can ever be reconciled because at present, the pump is only at 42 metres and certainly we're not pumping air.

The bore has not whimpered in 15 years of production. I will move to this slide, which is difficult to read from the audience, but what we see in all of these proposals for landholders – a false range of static water levels. What they've called here – in the top here is an initial standing water level. Now, in this section here, these are all the bores which are proposed to be replaced. And I will just go from the top here:

the first bore has a – they claim it's 72, but it's actually 56. If we go to the irrigation bore at Rosedale, they're claiming the static water level is 51 metres but it's only 12 metres. We go to the Comfort Hill bore that Doug Graham has just spoken about, the water level – they claimed it was 68 metres, but it's only 35.

5

So in the latest RtS model, Hume Coal has put up hydrographs which show that here are static water level is 51 metres; this is rubbish. Static water levels are the most basic and fundamental baseline information that any groundwater model or any groundwater evaluation can undertake. So they're using 51 metres upon which a two-metre drawdown is achieved at the trigger level; this is rubbish. So what are we dealing with? Are we dealing with a curve that goes from 12 metres down to this level which has been computed in the model as an eventual drawdown level? Have these levels been artificially computed? They're not realistic. Have they been artificially computed to misrepresent the truth situation, or is it just a fundamental error in the model?

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We might skip this slide, but this says the sort of documents that is being provided to landholders showing what it is now, what it may be and some remedial action. In this case, they're proposing to plug off the main – part of the main aquifer and reduce the head, probably down to about 120 metres of head. The bore is useless in that situation. I will just go to some conclusions and I will read these because they're hard to see. The initial static water levels are erroneous, artificially lowered to reduce apparent impacts. The initiation of AIP trigger levels are consequently false. Dewatering of water access licence holder – aquifer licence, conditions of approval of drawdown limits are not respected where aquifer dewatering rules are breached.

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Assumptions in make good provisions are invalid. Pumps are usually installed at the level of the main aquifer or shallower, not 75 per cent of the total head but designed to provide maximum drawdown, sufficient pump submergence and effective pooling with a minimal cascading water. If only 20 per cent of the hydraulic head is maintained after lowering of the water table, then aquifer loss – reduced available drawdown will vary the viability depending on the discharge rate. Deepening the bore will unlikely increase the yield unless the bore is initially shallow. Bore deepening into the underlying Shoalhaven Group is not feasible because there's no water there of any significance.

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Relocating the bore does not necessarily replicate the same yields. All bores to be modified or replaced need Water New South Wales approvals which may also affect setbacks from boundaries and other bores. Aquifer depletion, cementation, cascading water induces bore plugging, cementation, iron precipitation and leakage of inferior water. The cost of deepening disrupts into supplies. Compensation, changes in pump ratings, power supply, infrastructure and associated management of 94 sites is a horrendous burden and intrusion on the users, a process which is proposed to extend for well over 50 years. Thank you.

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PROF FELL: Thank you. This material will be available to the Secretariat, will it?

MR LEE: Yes. I've provided it.

PROF FELL: Thank you very much. I think we have a question.

5 MR GATES: Thanks, John, for that detail. I've got three questions, but I will get  
your answer before I ask the subsequent question. Do you have an opinion on why  
the private bore yields are so variable in this part of the Southern Highlands? For  
instance, you've spoken about some high-yielding bores. Hume Coal have talked  
10 about the medium yield being two litres per second. Do you have an opinion as to  
why the variation on yields?

MR LEE: Largely the variations are related to depth of drilling and whether or not  
the bore has, in fact, penetrated the lower part of the Hawkesbury Sandstone. I've  
15 been on projects where three bores might be drilled to, say, 100 metres, and one bore  
– new bore, deeper, will duplicate the – this yield by 10. I didn't go into the  
occurrence of fractures too much in my spiel. It's in the text. But the coincidence of  
fractures, subvertical jointing, has a major contribution. So the low case in the bores  
where you have high porosity in the primary sandstone accompanied by secondary  
porosity has an enormous contribution. And I might add too that many, many bores,  
20 like this one – we don't really have test pumps in the region to handle these volumes.

Doug Graham spoke of the ..... bore. It was tested 20 litres per second, but the  
drawdown was less than 10. So all of these bores, if you maximise the available  
drawdown, you get fabulous results. I might comment too that this – and it's in the  
25 text – that this area is tin the primary drainage pathway into the Sydney basin from  
the south. It has coarse, beautiful sandstones, particularly in the base. We can – this  
is a regional aquifer. It's not just something local. It can be correlated right through  
the region, well into Sydney, but in the southern part near the providence of these  
sands, we have fantastic resources, if exploited appropriately.

30 MR GATES: Let me – thank you. Let me ask you a second question. Can I hear  
your opinion on the concept of permeability or hydraulic conductivity reduces with  
depth in the Hawkesbury Sandstone?

35 MR LEE: No, that is incorrect.

MR GATES: Now, I think you might have answered this in your presentation, but  
the geological conditions in the underlying Illawarra Coal matters are not the same as  
40 the Hawkesbury Sandstones. Do they matter, say, in fracturing or - - -

MR LEE: Well, there has been many people drilling. We might get up to five litres  
a second in defined fracture zones, but generally the potential at depth is reasonably  
quite poor within shoals, within the shoals. It's a marine shoal sequence and  
generally very poor.

45 MR GATES: And, lastly, the Rosedale entitlement of 400 mega litres a year: do  
you happy to know how much of that is used in a year?

MR LEE: A large part of it, but the bore, yes, has entitlement 400. There's another bore on the vineyard which is an entitlement of about 150. There's a centre pivot, and that's used extensively. You can see that pivot from the freeway and it's a valuable bore for the area and the respective landholder.

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MR GATES: Thank you.

MR FREE: Thank you, Mr Lee. The next speaker, I understand, is Tim Littlemore.

10 MR T. LITTLEMORE: Thank you for the opportunity to speak to you today on this very, very important matter. My name is Timothy Littlemore and 10 years ago my wife and I purchased a property in Exeter, a piece of land. We built a home, a garden, and we looked forward to our future. The news that a new coal mine might be dug beneath our feet threatened our future and, more importantly, the future of all  
15 those in the Highlands. The threat posed by Costco Hume Coal has hung over our heads for eight long years. Once we became aware of the threat, we joined the throng of locals determined to stop the mine. So the fight began.

Rallies, speeches, legal advice, scientific expertise, and to support all of this,  
20 fundraising. The landholders in and around Sutton Forest were soon joined by others in the Highlands, then by the community in general. The bill has increased, and so did the contributions, from raffles, garden days, lunches, dinners, an art union, and more requests to Highlanders, which were always met with open wallets. The farmers, the winemakers, the horse lovers, the function centres, the visitors and the  
25 committed locals: help came from everywhere. While the scientists evaluated the impact of the mine, I was part of the fundraising team, which involved talking to many Highlanders, almost all of whom wanted to help.

To date, the landowners, the Coal Free Southern Highlanders, and their predecessors,  
30 Sustainable Southern Highlands and many others have contributed and we have raised and spent more than \$2 million from a community which is committed. Then a few years ago when Hume Coal held one of their rare information sessions in village halls they held one in Berrima, and a giant, the Battle for Berrima, was born. Thank you, Hume Coal. Together, we were and are determined to beat all of this by  
35 the intruder. One of the first indications that the Highlands were facing great danger were shown in Hume Coal's cavalier attitude to water, revealed at the public meetings which then fell into disarray because they didn't hold any more when they advised us that they would require so much of the water for their processes that 93 bores would be severely affected. 93 bores.

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However, they had a plan. They would make good to each farmer. Plan A was a pipeline bringing water across the Highlands, if the landholders agreed, bringing water to these 93 bores. Plan B: trucking the water to replace what they had taken. Hundreds of huge trucks on the roads each week. Or, plan C: come on to the 73  
45 properties and deepen the bores so that much more water would be removed. Not less water, but more. Damaging again. But wait: the water scientists disputed their statistics. It's funny how many of their statistics have been disputed by scientists

who put their reputations on the line. Many more trucks and pipes would be required. Where would this end?

5 Then there's the question of democracy. Hume stated that the great majority of Highlanders are against the mine. We certainly know that's true. Why is it that the majority in the community can't have their say in the decision? Why are the majority trampled by the minority? Water is the most precious element of our lives. Risking it here is madness. Doing so for someone's profit is obscene.

10 If Hume Coal are approved on this project, what am I going to tell my grandchildren? What are you going to tell your grandchildren, and their grandchildren? What are we going to say to people who ask us do we value this community? We have a responsibility: a cleaner world, a less polluted, more positive approach. We must aim for a utopia, not destroy what we have. I ask the  
15 panel to endorse the DOP's recommendations and protect us so that we can protect those who follow.

PROF FELL: Thank you.

20 MR FREE: Thank you, Mr Littlemore. The next speaker is Andrew Forrest.

MR A. FORREST: Good morning, Commissioners, and thank you for letting me speak this morning. I'm actually the other Andrew Forrest, so if anybody was terribly about what was going to happen, I'm going to speak permanently against this  
25 project. I'm a newly arrived resident of Berrima. I moved from a farming background situated on the western side of Young in New South Wales. We're also in hospitality, owning a restaurant, a café and a catering business. I'm asking the IPC commissioners to consider very carefully the possible problems that would be caused by this project and to act against its approval. We came to Berrima because  
30 of the village atmosphere. It has a sense of family, community history and pride. This could be all swept away by the activity of a coal mine just down the road.

I have noted that Hume Coal now own the land that is part of the other Remembrance Driveway, a tree drive along the old Hume Highway that was set up to  
35 remind people to sacrifice – for the sacrifice of soldiers during World War II and the subsequent wars. This site is in great decline due to some minor maintenance that could be done by repairing some of the fences, and it's not a good start to Hume Coal, showing the community that they have got the land and the community in mind, and that they will look after it.

40 As mentioned earlier, I was a farmer. The property that they own looks overgrazed and in a poor state, and a few other people have mentioned that as well. The use of untested procedure for their mining, especially for the used water, this sounds very dangerous. Our water is very precious. It is used by our farming communities and  
45 our own use and we do not need that contaminated because of an untested procedure. And if this is a small example of the way that they are going to mine, it's not a good start.

Coal dump, despite have precious water sprayed on it, atop of the dust – to stop the dust – from what I understand will surely not control the dust during the hot summer days. When the winds are blowing from the west, the dust is going to settle all over the Southern Highlands, especially our precious Berrima. The dust which will fall on  
5 our properties and environment, this surely will have a detrimental effect on the things that sustain the region, such as a farming and tourism, and all for a short-term gain for an overseas company with minimum benefit to the Southern Highlands.

I have flown over the Hunter Region and also driven around there and those ugly  
10 holes from mining that has destroyed this once pretty area. We do not want to see that in the Berrima district, like that unfortunate area in the Hunter. Despite this being a different mining technique, this could open up way for more projects in this district. It is estimated that a quarter of a million visitors come to Berrima a year and this could grow. Tourism will employ people and bring more income to the  
15 Highlands, but this is put in jeopardy by having an 800 metre long six-storey stockpile in our background.

This is a short-term gain for some expense of the greater community. I had come to Berrima because of the climate and its clean atmosphere. This is now put in danger  
20 due to the coal dust ..... this potential flying around. The fine invisible particulates of dust seem to cause health problems, like asthma, even lung cancer. It lodges in the lung. You cannot easily expel them. And I do not want this for anyone or my family to suffer these conditions. So why would anybody let anyone put us in that sort of danger? There is a lot that can go wrong with this project, being damage to human  
25 health and to the environment, so to you, the IPC commissioners, would you please consider this project carefully and do not approve it. Thank you.

PROF FELL: Thank you.

30 MR FREE: The next speaker is Ben Anderson.

MR B. ANDERSON: Firstly, thank you to the IPC and the community for giving me the opportunity to speak today. As you know, my name is Ben Anderson. I'm an environmental scientist who has worked in the mining industry for the last 12 years  
35 across open cut and underground coal operations, both here in New South Wales and in Queensland. I joined the Hume Coal Project two years ago as the planning approvals manager, and I suppose I'm here today on my own behalf to have a brief discussion with yourselves. As I said, I will be brief. I brief that within the EIS and RTS documents and the briefing that was provided to the IPC by Hume, the majority  
40 of the topics having been addressed. However, I've just got a few points I think it's important to restate. The first of all is the scale of impact. Hume Coal is far and away the lowest impact coal operation which I've been involved in. To quote DPEs own report:

45 *The department has undertaken a comprehensive assessment of the full range of potential impacts, including economics, noise, vibration, air quality, greenhouse gas emissions, traffic, biodiversity, heritage, ag and rehabilitation.*

*The department considers that the majority of these impacts would be similar to or less than other approved underground mining projects. The department accepts that these potential impacts are likely to be able to be managed, mitigated or offset to achieve an acceptable level of environmental performance, subject to the provision of additional information.*

I intend to provide this additional information in a submission to the IPC and also address some of the issues that have been raised here today. Some of the reasons why DPE made these comments, and some of the reasons, I suppose, that I believe it's the lowest impact operation: (1) it's an underground operation with no subsidence. Unlike longwalls or open cut operations, we won't have any impacts to surface infrastructure or ecosystems from underground mining. Farming, forestry, and other industrial activities and residential activities will continue above the mine unaffected during operations. There's minimal external infrastructure required for this operation.

We need only a minimal amount of rail line to connect the existing rail line, and one of Australia's busiest highways forms the eastern border of the operation, providing easy road access. The actual area for the surface infrastructure, which only takes about 2 per cent of the total project area, is situated next door to the existing Moss Vale Enterprise Corridor and is on farmland that has already been cleared and has been determined by the DPE via the site verification certificate process to not be bio-strategic ag land. As I said before, it's a non-subsiding mining method, and due to this fact, will have minimal impacts on the overlying aquifers.

Unlike an open cut, which removes the host rock from this aquifer, or longwall which produces a network of cracks from the ..... void, the process that Hume Coal is putting is putting forward will maintain the overlying strata, preserving these aquifers. I know there has been a lot of talk about make good, so I will make some comments, I suppose, with relation to groundwater. Yes, there will be impacts to landholders' bores. DPE's own expert, Hugh Middlemis, has agreed with the model numbers. These numbers that we used within the model were conservative in nature to start off with. These impacts to landholder bores, like those related to other environmental impacts, will be managed and mitigated. In the case of bores, this will be undertaken by the make good process.

Firstly, the process of make good is not a new process. Other operations, such as Ulan Coal out at Mudgee, Cadia Mines at Orange, already have make good conditions within their project approvals. They require them to make good on the impacts on the landholders' bores that they're already having through either the open cut operation or underground. Hume Coal is seeking to have these same conditions apply to them. I suppose with regard to the process itself, make good is a term, but essentially what it means is, as a step by step, first of all, which is already an undertaking – identification of the bores impacted, which is done by the modelling. Then the baseline assessment of these bore impacts, which is already underway, with around 20 landholders who have already entered into an arrangement for Hume Coal to undertake those baseline assessments. The next step is the negotiation process.

So Hume Coal and the landholder get together and negotiate a remediation strategy for these bores.

5 So this could be something either, like, compensation for increased pumping costs, a lowering of the existing pump within the bore, or drilling of a new bore. Once this is agreed, the strategy is implemented. I think it's important to say that following this process, no landholder would be without water at any stage of the operation, as this would be undertaken before the impacts occur. In terms of groundwater licensing, Hume already holds over 90 per cent of the groundwater license required for  
10 operations. These water licenses represent approximately two per cent of the sustainable yield of the Sydney Basin Nepean groundwater source.

Any – the actual physical removal of water from the groundwater source represents only one per cent of the greater water source sustainable yield. So essentially Hume  
15 Coal will hold 16 per cent of the available allocated volume but will only remove eight per cent of the available allocated volume from the groundwater source. And this only occurs at its peak in two years of the 20 year mine operation. I suppose another aspect was rejects underground, that I would like to talk about.

20 Whilst we acknowledge this is going to be more expensive than surface emplacement of rejects, underground emplacement was selected for a number of economic and social benefits that it would provide: (1) it eliminates any permanent tailings pond or, you know, co-disposal cells on the surface of the operation; (2) it significantly reduces the potential for visual dust and noise impacts compared with this  
25 conventional surface emplacement of reject coal; it reduces the surface disturbance by avoiding the need for large reject stockpiles; and it also provides additional ground support pillar confinement in backfilled areas. This hasn't been relied upon during the mine design process, although it is an additional benefit for emplacement of the rejects underground. The – it's important to know as well the use of  
30 underground reject emplacement was undertaken in direct response to the preferences of regulatory officials during the design process.

The modelling concentrations resulting from the emplacement of the reject slurry in the mine void and the subsequent groundwater reaction was show to actually be  
35 lower than or equal to the baseline groundwater conditions that exist within the Wongawilli seam. As we discussed earlier, part of this was due to the mitigating measure or the treatment of one per cent limestone before emplacement. In terms of discharge, the migration of discharge groundwater into surface waterways is not considered to be a potential – credible potential outcome for the Hume Coal Project.

40 Due to the physical geometry of the mine so essentially the fact that the majority is down-dip and also the fact that mine workings do not daylight into any valleys or escarpments, there's no surface access shafts or tunnels that would allow the mine to drain because the mine has been designed to be self-containing and to contain any  
45 water filling within the mine workings. Consequently, there'll be no drainage of water from within the mine workings to surface waterways during operations or post



closure. I'll just finish with economics. Look, I think it's important to remember that the project itself will bring around half a billion dollars of net benefits to NSW.

5 It'll generate around \$9000 in discounted net direct and indirect benefits per household to the Southern Highlands region over the mine – over the life of the mine and as a few people mentioned today, there's areas in the Southern Highlands that suffer from depressed economic levels and desperately need the jobs that – jobs and other business that the project would bring in. Ultimately, I believe the project would deliver a net benefit for the Southern Highlands region and the State of NSW  
10 as a whole. I believe the risk has been assessed adequately and can be managed. I ask the IPC to review the scientific data presented by all parties and reach a decision based on the facts presented. Thank you.

15 MR GATES: Ben, we've heard a bit about the Berrima Colliery and its discharge and the heavy metals that come out of that. Now, how is that different from what your mine might be and how does their heavy metals actually discharge to the surface water?

20 MR ANDERSON: Well, obviously I can't talk for Berrima Colliery itself so the actual process. I suppose one of the key differences is to leave water quality to one side and talk about discharge itself. Their panels actually daylight out into the gorge, whereas ours are completely self-containing. So there's actually no physical process with which our water can daylight. Secondly, I suppose, we can follow that up with some additional feedback to yourself from our modellers and mine design team but  
25 overall it's a different system and a different – geometry different location.

MR GATES: Follow up question. The groundwater that's discharging to the creek systems wherever the water table intercepts the creek systems, do you have enough detail on where the groundwater is discharging?  
30

MR ANDERSON: Not on me but, George, what – I can take that question on notice and provide it within our submissions.

35 MR GATES: Thank you.

PROF FELL: Question.

MR .....: Did you have a question?

40 PROF FELL: Sorry. Please.

MS TUOR: I just wanted to take the opportunity to clarify, in your opinion, some of the statements that have been made over the course of yesterday and today. One of them is a number of people have spoken about trucking of water being a make good  
45 option. Can you just confirm that that is or is not an option.

MR ANDERSON: Yes. I think it was covered within our initial presentation within the RTS and EIS. We put forward the options that we've stated for make good. Trucking water is not one of them, nor is piping. So our make good strategies that we're moving forward with, for the majority of bores, either lowering the pump or  
5 providing compensation for increased pumping costs, or either drilling or modifying the existing bores that exist on landholders' properties. So trucking is not a consideration.

10 MS TUOR: And neither is a pipeline.

MR ANDERSON: And neither is a pipeline.

MS TUOR: Were they options earlier on? One of the speakers today mentioned that there was plan A, plan B and plan C so was it initially – I'm just trying to  
15 understand where it's come from.

MR ANDERSON: Yes. Yes. Not during my time there. I can't obviously speak before my time. I'm not sure, sorry.

20 MS TUOR: That's all right. That's fine. Also, there's been some statements about the stockpile, ranging from it being six to eight storeys to being, I think, 800 metres to a mile long. Can you just clarify what the stockpile would or would not be and where it's located and size, etcetera.

25 MR ANDERSON: Look, I don't want to get it wrong by a few metres here and there so it is covered within both the EIS, RTS – within our designs there and I suppose that's the best reference point for that.

30 MS TUOR: So you don't have - - -

MR ANDERSON: Sorry, off the top of my head I'm not going to say it's - - -

35 MS TUOR: Yes. All right. We can look into that. Also, there's been some statements about the request for information being not provided. In particular, I think there was a statement made about the requests for information on geology, being asked for but not being provided. Can you just clarify whether that has or hasn't – your understanding of that.

40 MR ANDERSON: With regard to geology to the department?

MS TUOR: The data – the geological data – baseline data, there seems to be different statements floating around as to whether there is more geological data than is available. And I understand that there has been quite a lot of geological data assessment undertaken but there have been requests for that data to be provided and I  
45 think it was Southern – Free Southern – Coal Free Southern Highlands had said in their - - -

MR ANDERSON: Yes. Obviously, we have some commercial-in-confidence information and we work with the Department of Planning. They're our assessment body. So we've responded to any request for information from NSW Government, we've provided everything that's been requested. Obviously, I can't speak directly  
5 to what's being requested or has been requested elsewhere. Every request that we've had, we've dealt with and I suppose - - -

MS TUOR: Okay. So in relation to the risk management assessment that was undertaken, was that requested by the department?  
10

MR ANDERSON: No, it wasn't but – I understand we've had discussions with you and we'll be providing it to yourselves.

MS TUOR: Right. Thank you.  
15

MR FREE: Mr Anderson, I just have a follow up question. Just on the make good arrangements, you may have heard some of the speakers have told the Commission that they're affected landowners and they're not aware of the particular make good arrangements that would apply to them. Can you just give us – give the Commission  
20 an indication as to what information has been provided to particular landowners about what make good would provide to them and what the process would be for them to have it.

MR ANDERSON: Yes, of course. So I'll start very broadly. Obviously, we've got  
25 the EIS and RTS. Now, that is provided to everyone. But I think what you're talking about is to individual landholders with affected bores. So Hume Coal have gone through a long process, which has included phone calls, letters. We've provided information packs via registered mail to every affected landholder. That's included hydrographs of their bore, a proposed make good strategy for their bore,  
30 explanation of the process and an invitation to meet with ourselves.

MR FREE: Thank you.

PROF FELL: Sorry. I have a question.  
35

MR ANDERSON: Yes, of course.

PROF FELL: I think at some stage you said about 15 bores could not be made good as such. I'm just wondering how much water we're talking about for those particular  
40 bores.

MR ANDERSON: Sorry. 15 bores could not be made good?

PROF FELL: Of 115 that are affected. There was a table presented.  
45

MR ANDERSON: Yes. Sorry. All bores can be made good – I believe you're talking about what will need to be redrilled; is that - - -

PROF FELL: Could not be made – I should have qualified that one.

MR ANDERSON: Yes – no, no. That’s fine.

5 PROF FELL: Made good by deepening or other methods.

MR ANDERSON: So essentially, every bore will either be – either rectified so it’ll be lower the pump or provide compensation, or we will drill a new bore, either deeper to access water further down - - -

10 PROF FELL: Well, I appreciate that - - -

MR ANDERSON: Yes.

15 PROF FELL: - - - but – I mean, one of the comments made was you’d have to truck in water.

MR ANDERSON: That’s incorrect.

20 PROF FELL: That’s not true?

MR ANDERSON: No.

PROF FELL: Thank you.

25 MR FREE: Thank you, Mr Anderson.

MR ANDERSON: Thank you.

30 MR FREE: I think at this stage there was a short break planned, so might reconvene in 10 minutes.

35 **RECORDING SUSPENDED** [11.36 am]

**RECORDING RESUMED** [11.51 am]

40 PROF FELL: Ladies and gentlemen, I wonder if I can encourage you to start moving back into your seats, please.

MR FREE: Can I ask Bruce McGowan to come forward as well, please. Our next speaker.

45 MR B. MCGOWAN: Good morning to the panel. Is that mic working? Is that better? Okay. Good morning to the panel. Water is very much the focus down here,

as you can see. We would have liked to have, you know, welcomed you with some rain. The best we've been able to do is a light mist, I'm afraid. My name is Bruce McGowan. Together with Patricia Manolis, I am the owner of a 100 acre farm at Southern Forest. The farm adjoins the southern side of the Illawarra Highway,  
5 immediately opposite the southern boundary of the Hume Project area. We welcome the DPE assessment report recommendation that the Hume Project should not be approved.

10 In my earlier written submissions, I covered many aspects of the project that are detrimental to our community. However, I feel it is important for me to express personally to this hearing our particular concerns that adequate measures will be implemented by Hume to make good, in their words, any reduction or disruption to our water supply. We raise Angus cattle with an average herd of 30 cows, 30 calves and a bull. A small farm. The herd consumes an average of 2600 litres per day, we  
15 have a licensed bore and a holding tank of 17,000 litres, equivalent to six and a half days' consumption. When we are absent we have the farm monitored at least twice per week to check on cattle health and, most importantly, water supply.

20 If something goes wrong, we have very little time to correct the problem before the cattle may die. Our farm operation is completely dependent on a reliable and regular supply of uncontaminated water and, in particular, on the bore. Drought periods over the last 20 years have resulted in paddock dams becoming redundant and even a previously reliable spring dried up for months last winter and looks to be drying out again. We have serious reservations about the make good measures advanced by  
25 Hume, namely, as I understand it now, payment to cover increased pumping costs for bores forecast to decline in depth by two to five metres, expected to occur in 15 to 20 years' time.

30 Increasing depths of more impacted bores at some time in the future, depending on drawdown – who determines that – probably in about 15 years' time. And then, finally, bore replacement or alternative supplies for the most impacted bores. The implementation of these measures will require detailed negotiations and legally binding agreements between Hume and the individual landowners. Many questions arise. How will a single landowner negotiate such complicated measures with  
35 Hume, who would be in an overwhelmingly strong negotiating position once it has project approval? When will these negotiations and remedies take place?

40 Immediately, 10 to 15 years' time or, as has been heard more recently, possibly in five year intervals? When some of these bores are forecasted to be impacted but when the project is nearing the end of its life, Hume may be less inclined to respect its obligations. What groundwater model will be used as a basis for negotiation and future monitoring? Will any future deviations from the modelling forecast be accepted by Hume or contested as being due to factors other than the mine operations? The practicality and logistics of bore replacement, alternative supplies,  
45 whatever that implies as well, will in many cases be extremely problematic, as has been already demonstrated – discussed.

Who will pay the landholders' legal costs? Will landowners be compensated for any interruptions to their water supply caused by the project or will Hume require that once initial agreement is reached, the landowner would have no further recourse? I contend that the proposal for recompensing extra pumping costs is not a make good  
5 measure insofar as it does not allow for the fact that lower aquifer pressures will not only increase pumping costs but will decrease bore pump flow. Finally, will Hume accept to provide backstop or alternative water supply in all cases where a proposed  
10 make good measure does not maintain the bore capacity? It now appears that is highly unlikely. In conclusion, we are heartened by the DPEs recognition of the difficulties and its conclusion – I quote:

*That the make good arrangements are not suitable or practical for the scale of impacts for this project.*

15 Thank you.

PROF FELL: Thank you.

MR FREE: Thank you, Mr McGowan. Can Chris Harvey come forward, please.

20

MR C. HARVEY: Thank you for the opportunity to speak today. I'm going to try and avoid repetition but it's almost impossible with the presentations that have been made so far. My name's Chris Harvey and I want to talk about specifically the food and wine tourism and the problem with water. My wife and I own a 100 acre  
25 property four kilometres east of Moss Vale, which we purchased in 1999. we established a vineyard and followed that with a cellar door and restaurant in 2006. I was the early chairman of Southern Highlands Food & Wine and helped set up the food and wine trail in the highlands, which has been a great success and gone from strength to strength.

30

We attract locals from Sydney, Canberra, Wollongong, overseas and interstate. Currently, the figures from Tourism Southern Highlands, we're attracting around about 1.7 million visitors per annum, 261 million in business expenditure, which equates to 2500 jobs. Thank you. There are currently in the highlands around about  
35 32 vineyards, 16 cellar doors and all of these rely on underground water for irrigation purposes. Some of these can handle over 200 people for a single event, such as weddings or in the case of one particular cellar door, if you could call it that, it will cater up to 10,000 people for a special event. In our case, our property has recently been rezoned for tourism, which will allow us to put on accommodation on the  
40 property and also construct a function centre which will be separate to all our other developments.

We don't have access to town water so we'll need to rely on rain water and our own bore. I just emphasise tourism provides employment, especially for young people of  
45 both genders. Current unemployment figures in the highlands I believe are around about three per cent, which the lowest it's ever been to my knowledge. It brings money and visitors into the region which benefits all businesses. It support

improvements to infrastructure and it doesn't pollute. The impact from a coal mine and washery in the Berrima area will undoubtedly have a detrimental effect on our business and the whole tourism industry in the Southern Highlands.

5 Other factors – I just want to touch on water. We cannot put at risk the aquifer upon  
which we rely. We have a new bore, put in only six months ago, drawing from  
around about 150 metres. We use this to keep our dams full, particularly at this time,  
and also for the irrigation of the vineyards. In due course, we will have to use it  
10 through a purification process for the development we're going ahead with. Our  
property also is adjacent to and provides a ..... of cattle to one of the largest dairy  
farms in the Southern Highlands which has been in operation now for well over 60  
years.

15 It is the most westerly dairy farm and therefore the closest one to the proposed mine  
development. It relies on the aquifer for its water to maintain feed for its dairy herd.  
It is one of only seven remaining dairies in the Southern Highlands. And I think I  
heard Alan Jones last night quoting the fact there used to be 150. Any damage to the  
aquifer would put this dairy farm out of business. It would also put us and all the  
20 other vineyards in the Southern Highlands at great risk of having to close with our  
dependence on underground water. Please do not let this mine happen. Thank you.

PROF FELL: Thank you.

25 MR FREE: Thank you. The next speaker is Dr Ian Wright.

DR I. WRIGHT: Thanks for the opportunity to deliver this presentation, and I've  
made a couple of submissions with lots of detail in them as well. But I've involved  
for the last 15 or so years studying the impacts of coal mines on surface water quality  
in the Sydney Basin so I highlight eight coal mine discharges ranging for Springvale  
30 Angus Place at Lithgow – they share a second one with is number 7 here – Clarence,  
which discharges into the Wollangambe; Canyon Coal Mine, Grose River; Tahmoor  
Colliery, Bargo; West Cliff Colliery, Georges; also Nepean at Berrima Colliery.

35 So my comments relate to the past performance that I've seen, and I contrast with  
what predications are made in EISs. Also colour coded. Active mines: West Cliff,  
Tahmoor, Springvale and Clarence. Canyon is closed. It closed April 1997.  
According to the Mining Resource Regulator, it is still in the closure process, and  
Berrima Colliery, it's closed but it is definitely still actively in the closure process.  
So what happens to a coal mine after the mine closes? We have properly Australia's  
40 best worked example just down the road at Berrima that sheds a lot of light on what  
can happen under our feet underground once this happens. So up until 2013 the  
Berrima Colliery was active.

45 It was active for approximately a century, coming from a pick and shovel day  
through to a mechanised mine. And then roughly 15 per cent of the mine was  
flooded, and this is the drainage at it. And after that, you can see the water itself  
looks reasonably clean, but it starts to oxidise immediately, and the very heavy

metallic load starts to sediment, and that actually discharges into the Wingecarribee River, which is one of the most important waterways in Sydney's drinking water catchment. It mightn't be important in terms of the size, but this is the most reliable area of rainfall in the Sydney drinking water catchment, and in fact, Wingecarribee River is also used to transfer water from the Shoalhaven catchment. This is the Canyon coal mine. This is just a few months ago. It shut April 1997.

So 22 years after, water still surges out of there, and the sound of it sounds like a freight train. It has a massive impact and it has enormous levels of zinc and nickel, two metallic elements that are highly toxic to aquatic ecosystem. And across the eight mines that I've studied, this is number 1. This is closed. This is unmanaged, and this is a stain on ecosystem and future generations. The second highest was the Berrima coal mine. The nickel and zinc again. That just gives us some warning about what might happen with this new proposed mine. And I feel a sense of due diligence that I need to share this before something else might happen like this. So the Berrima coal mine, this is taken – photo taken. I'm very proud of this, because this is actually the EPA taking water samples – not that easy to get to happen.

That's the Wingecarribee River, upstream of the coal drainage adit. Roughly one Olympic swimming pool on a normal day comes in of coal mine drainage, and this is downstream in the Wingecarribee River. Visually, that's only separated by about half a kilometre. I don't have science-y graphs, but it's enormous levels of zinc, nickel, iron, manganese and a whole other cocktail of salts and minerals. I'm a biologist. I study the invertebrates in the waterway to give us some clue about the effect on life. My PhD student Nikia looking in the net here – full active net of invertebrates here, decimated at this point – biggest impact I've actually seen from a coal mine in the Sydney basin.

So how is that licensed by the EPA at the moment? pH, oil and grease, suspended sediment – the metals coming out are in fact unlicensed. That is the case with many of the coal mines. EPA have stepped in and I also congratulate Boral. They realised that this is an ecological disaster. They care about their reputation and they've installed an underground treatment system. They could give you information on how much that costs, and they are now currently trying to seal it up. So they would be very good people to talk to about the efficacy of bulk heads and how difficult it is to put them in in the geology here.

So this is the nickel level. When the mine was operating, 150 micrograms per litre – parts per billion, if you like – this is coming out of the mine. It's dangerous at about 10 to the ecosystem. The mine then flooded when they turned some pumps off and allowed 15 per cent of the mine workings to flood and then it shot up. This is one of my points. Boral are a good operator. They hired consultants to do modelling about what would happen when they closed the mine and flooded it and they didn't predict this. You've got to be careful about prediction and what actually happens.

I'm a scientist that studies facts; that is, what we can actually measure after the fact. It shot up. This wasn't predicted and we did a 12-month study and sky high nickel.



It has since come down because they've installed treatment at the insistence of the EPA and the mining Resources Regulator. It's a headache for them, and luckily Boral have been good operators and have done that, but it gives a clue about what could happen here. By the way, in the river – one of the most important rivers – I'm  
5 not lucky enough to live in this area, but I drink the water from this area. We all do in Sydney. Upstream the nickel level in the Wingecarribee River – almost unmeasurable. Coming out of the mine – that's the average for each of our sampling occasions over a year – downstream it got higher and higher, not because of the mine but because it dried out.

10 What effect climate change might have and the variability of flow – difficult to predict but it's likely to be drier in the future, so way above the ANZECC guidelines, and the ecosystem certainly suffered based on our invertebrate results. We've published all of this. So mine shut, it came out of the mine drainage adit – that was  
15 the river in late 2017. The EPA acted with the mining Resource Regulator and Boral have come to the party and they're treating it at the moment. It's a very expensive exercise. I'm yet to ever see a mine that doesn't have an impact on local surface waterways. And if you do, in a way, too late, mate. It's out in the waterway and you've got to unscramble an egg.

20 Springvale mine – this is the number one point source of saline pollution into the Warragamba catchment. I know this one really well. We've just had a publication accepted looking at all eight mines in the Sydney Basin. Pristine water quality here, horrific down here – full of metals, full of salts. I've seen that go through the  
25 planning assessment process under the previous Planning Assessment Commission. And thanks for the audience; they're nowhere near as vocal as they were in Lithgow. This is such a headache for the regulators, and it is a major, unmanaged source of saline pollution – let's not mention the metals. Cox's River – second most important river going in terms of Warragamba Dam, our main water storage.

30 I know a bit about Warragamba Dam. I was the water quality auditor in the most recent audit of the catchment waterways and storages 2013 to 2016. This is from a document that's in both – that is done for Parliament – independent review. So this is looking at the salinity measured as electrical conductivity. These are the old  
35 metropolitan storages: Avon, Cataract, Cordeaux. Some of those are over 100 years old – should be saltier because they're near the coast. Most of our salt comes as sodium chloride from the ocean, but Warragamba is actually by far the most salty storage and it has actually got an accelerating trend. We had data 61 – CSIRO do the time series analysis and salt has a rising trend.

40 This is not a problem that we've only seen here; Western Australia, Adelaide, inland Australia has huge problems with salt. As an auditor, we only had 12 water quality indicators to look at. I haven't seen the metals, but I know that Springvale coal mine is number 1 source of that saline pollution. We couldn't track it because there were  
45 very few water quality sampling sites downstream of that. One of my points here – and I don't have the data – but one of the worst waterways for water quality – I hate

to say it – but it’s the Wingecarribee River just a few kilometres from here – Sheepwash Bridge at Berrima.

5 There’s actually a level 1 algal bloom at the moment because we have a lot of people living in the area. We have a lot of sewage, a lot of farmland, so the prospect of a new mine that, in my opinion, will almost certainly add to water quality problems in the cumulative sense will come at a cost for the future sustainable production of clean water for more than five million people, seven million due to come shortly. Redbank Creek, Picton – subsidence. Tahmoor Colliery which has had several  
10 different owners have done great modelling to look at the effects of subsidence – Redbank Creek, the model didn’t work quite as they expected and major water quality issues associated with that. I’m currently looking at the EIS for that at the moment. They understate these effects. Thank you very much.

15 MR SHARROCK: Dr Wright, thanks very much for your presentation. I found it most interesting, particularly as I’ve not been to many of these locations, so it was very helpful.

DR WRIGHT: Thank you.

20

MR SHARROCK: I’m very interested to ask you, you said that Boral are being very responsible about the Medway Mine – they’re putting in processing. So could you just clarify, have they put it in, and if so, have you done any sampling since they’ve put it in? And is it a plant underground or a plant at the discharge? A little  
25 bit more information, please.

DR WRIGHT: Look, it’s a great question, Geoff. I think I’ve seen a couple of people from Boral here who could probably tell me a lot more about that. I’ve been involved in a stakeholder group and I meet with them quite regularly with the EPA,  
30 the Resource Regulator and members of the community here and they’ve put in an underground limestone trench that runs for something in the order of half a kilometre and the combination of settlement, high pressure air and run-in through limestone changes the pH and allows the flocculation and settlement of a lot of metals. It is improving water quality enormously, so a lot of the metal levels have come down.  
35 There’s quite a few things that haven’t come down, including some of the salt levels, but they are currently installing bulkheads to hold back the contaminated water and I think for most of us, we’re unsure about how that is going to work.

Mr SHARROCK: Thank you.

40

MR GATES: Thank you, Ian. My question is: is Hume Coal’s proposal substantially different? This site at Berrima seems to be a point source of pollution, and we’ve heard from Hume Coal that their discharge, you know, may be more diffuse discharge, and there will be some dilution as it flows from the mining area  
45 through to the unmined area, and plus they’re going to add limestone to the slurry. Is it any different, do you think in terms of the Berrima example?

DR WRIGHT: Thanks for the question, and I think the way you describe it in terms of the – of their likely dilution, I haven't read that in their EIS. In the EIS, I've read more a denial that they will have any impact whatsoever on surface water quality. I have – personally, I have – well, none of us can predict the future, but I'm incredibly  
5 dubious that they will not have an impact, and I've gone through the EISes.

I've been involved in this process with so many mines, and the performance are here predicted in the EIS to get the approval is quite different to what I've seen eventuate. I believe that – the little I know about the hydrogeology here, it is so complex, you  
10 don't know until you're down in the strata exactly where the faults and dykes are, how it's going to work, what the permeability is, but it is permeable, and it's going to come out some day.

That is my professional opinion, and I've formed that not just looking here in the Sydney basin, but also looking at the United Kingdom where so many of their mines shut down over a 30 or 40 year period post World War II, and sometimes it was 10 years, 20 years, or even 30 years, but the mine filled the old voids. It reacted. You got air, oxygen, sulphur, it reacts with the geological strata, the EIS and the leachate studies show that they've for those ingredients here, and then it hits the surface at  
15 some point, sometimes with physical force.  
20

It's actually blown out the side of the hills in parts of the United Kingdom. But also it has caused pollution when that metal-rich, acidic, salty drainage hits the surface. It appears certain to me that when you mix the slurry and try to inject that underground  
25 you guarantee that you're going to have some really crook water in a semi-viscous state, and it's just then a geological roulette: when is that going to come out, and perhaps it's going to be in half a century, but, to me, it's likely it will.

MR GATES: Thank you.  
30

PROF FELL: Any further questions? Thank you very much.

DR WRIGHT: Thank you.

35 PROF FELL: Can we have Geoffrey Wright, please.

MR G. WRIGHT: My name's Geoff Wright and I'd like to take this opportunity to thank the commissioners for their time today and allowing me to speak. My wife and I have a small holding and some lease country in the middle of Belanglo State  
40 Forest. Our farm is approximately seven kilometres south west of the proposed coal mine site, and I, like all my neighbours in the area, am opposed to the Hume Coal and Berrima Rail projects. On our farm, we run a small number of cattle, we have poultry, a large vegetable garden, medium-sized orchard, and thus far have planted over 300 trees. We also have a commitment to the Rural Fire Service for a static  
45 30,000 litre water supply in case of bushfire.

Because of our location, we are blessed with an extraordinary variety of wildlife. Occasionally we sight a koala. For water, we rely on rainwater tanks, three small dams, and our beautiful, fresh, high-quality bore water. Without access to this underground water, particularly during the now increasingly and longer periods of  
5 hotter and drier weather, all our animal and plant life would suffer. If the aquifer were to be damaged in any way and we were no longer able to rely on bore water as a backup for our tanks and dams, our farm would no longer be viable. Interestingly, last year I received a letter from Hume Coal dated 25<sup>th</sup> June and signed by Greg  
10 Duncan, which is the last communication we've had from Hume Coal in any form, a copy of which I've attached to my submission.

The second paragraph says, and I quote:

15 *I understand that any impact on your property can be worrying.*

That's a – that's some concern, that statement:

20 *However, please be assured that Hume Coal will make every effort to ensure any impact on your water bore is temporary.*

I'm not sure what that means:

25 *And you will not for any period of time be left without access to water for all your needs.*

How can Hume Coal possibly back up this statement? I understand that the number of bores estimated to be adversely affected has recently been updated from 91 to 118. I ask where would Hume Coal obtain the water for this make good process and how they would provide the massive infrastructure required to deliver it. Our bore and  
30 those of our neighbours will be the first affected in the early stages of the mine. The loss of bore water, for whatever reason, I believe would heavily impact agribusinesses across the Southern Highlands. My neighbour, Susan Woodcock, owner of the thoroughbred horse stud Meredith Park, told me she would have to let two of her full-time employees go if she lost access to her bore water.

35 David Lawrence, owner of Cherry Tree Hill Winery, said his business could not survive without being able to rely on the high quality water from their bore. Eight full-time employees would lose their jobs, he said, if he no longer had access to the aquifer, especially during dry periods. These job loss scenarios would be, I believe,  
40 repeated across the Southern Highlands. I believe it's essential for our precious underground water is protected from all of the possible negative impacts this proposed coal mine would have. I'm also, like many others here, concerned about the negative impacts this mine would have on the pristine tourist locations of the Southern Highlands. The region, particularly the historic town of Berrima, attracts  
45 many thousands of tourists.

- They come for the fresh local produce, the restaurants, wineries, early colonial history and architecture, and the spectacular scenery, seasonal change, and its close proximity and easy access from Sydney. A huge stack of mine coal, dust and grime residue from the coal mine, noise and light pollution 24 hours a day, seven days a week, sizeable increases in road and rail traffic will all have a negative impact, not only on the environment and the health of local residents, but also a detrimental effect on tourism, which will financially disadvantage the whole region. This would lead to increases in unemployment and health care costs.
- 5
- 10 My greatest concern with this proposed coal mine is the contribution it will make in greenhouse gas emissions. If the mine goes ahead, then the coal from it will be burnt somewhere on the planet. This will contribute to dangerous climate change. Commissioners, you have been told by some at this hearing we must have coal for jobs. We must have coal for steel. We need coal to keep the lights on. I submit that
- 15 these statements ignore the precarious position humanity now finds itself in. After about 50 years of study by thousands of scientific organisations, we now know fast-paced climate change is happening and we know that the burning of fossil fuels is the major cause.
- 20 The United Nations Intergovernmental Panel on Climate Change, given all the research and evidence they have access to, recently made it abundantly clear: we now have 12 years in which to act. The world must quickly and drastically reduce the burning of all fossil fuels. We humans must take immediate and collective action to avoid major climate breakdown and the collapse of the biosphere and thus
- 25 civilisation. Like many here, I have grandchildren, and I am horrified by the thought of what the world's climate will be like in the not too distant future if we do nothing. Please, commissioners, take into account the total pollution this coal mine will be responsible for. Recently in talking with my daughter about dealing with climate change and the future environment confronting her three children, she said to me,
- 30 "We must be relevant to their future. We must show some courage." Thank you.

MR .....: Thank you.

35 PROF FELL: Thank you.

MR FREE: Mr Wright - - -

PROF FELL: We do have - - -

40 MR FREE: Sorry. Can I just have - - -

PROF FELL: - - - one question.

45 MR FREE: - - - a quick question.

MR WRIGHT: Certainly.

MR FREE: Could you just tell the Commission what your own water entitlement is and how much of it you use?

MR WRIGHT: We have a bore that we believe to be at a depth of 88 metres. It's  
5 one of the original bores in the district where we – where our location is. The  
documentation we have – we haven't owned the property for all that long, but the  
documentation we have goes back to the 1980s, and it is explained on that  
documentation as unlimited. We don't have a monitor on our bore; we keep a diary.  
The Department of Water Resources seems to think that's sufficient at this point in  
10 time. It's not a big bore. I don't know what the flow rate is, but we use it primarily  
for our stock, our garden – orchard – and also for the trees that we've planted trying  
to keep them alive, which has been quite difficult in the last year.

MR FREE: Thank you. Can we have Hugh Farrimond, please.  
15

MR H.R. FARRIMOND: Good afternoon. My name is Hugh Farrimond. I'm a  
resident of Berrima, and I support the recommendation by the Department of  
Planning and Environment to reject the proposal to mine coal in the New South  
Wales Southern Highlands. I consider the project neither a financial nor a social  
20 benefit to New South Wales nor Australia. Financial: the potential damage to the  
aquifer, documented elsewhere, has a financial consequence which I regard as  
beyond any estimate.

Social: 14 years ago, my late wife and I chose Berrima in which to retire. The  
25 historical significance of Berrima, its size, infrastructure, both physical and social,  
and proximity to and remoteness from Sydney were factors in our choice. The town  
is a rural area. The air is clear and clean and, in winter, very crisp. The stars are  
amazing, and the nights are beautifully quiet. I have no faith in the claim by Hume  
Coal that transport of bulk coal from Berrima to Port Kembla would have any –  
30 would have little impact on the dust, air pollution and noise.

A possible outcome of this hearing, I understand, would be a conditional approval of  
the mine. This possibility is of serious concern, as the record of both State and  
Federal Governments in policing even basic rules is not impressive. An underground  
35 coal mine with a mine-head some five kilometres to the west and a railway line two  
kilometres to the south would, I consider, change Berrima from a rural and historic  
village into an industrial area comprising a mine and a cluster of private dwellings  
and historic relics. The industrial landscape would, I believe, significantly affect our  
tourism. Visitors numbers to our historic sites would change these interesting places  
40 into simple relics. I ask that this lovely historic Berrima be protected and request  
that a coal – that the coal seam below us be protected permanently against  
exploitation. Thank you.

MR FREE: Thank you. The next speaker is Ian Wiskin.  
45

MR I. WISKIN: Thank you, Commissioners. My name is Ian Wiskin. My  
background is managing major project developments around Australia. I was

previously the director of the mining industry body in New South Wales prior to the Minerals Council, and I have – I also acted as an adviser to Hume Coal, but this presentation is my assessment of the Hume Coal Project based on all available evidence that I viewed and including my additional research about this project, and  
5 there are a number of things that weren't taken into account by my – in my private submission to the EIS that the Department of Planning just simply ignored, but I suspect that's the case with most private submissions. So just – whoops – moving ahead.

10 Well, why am I here? I'm a local resident and a part-time adviser. I'm a strategic adviser on a wide range of projects in the resources, energy, recycling, manufacturing, water, agribusiness and defence industries. I've had experience with large-scale irrigation. I headed up the Pratt Water Study into the Murrumbidgee. I have knowledge of how you assess projects according to various models in three  
15 states. I am involved in water trading and have acquired significant amounts of water across the Murray-Darling system, and, of course, we have water trading in this particular region here. I also have been involved with coal seam gas in Queensland, and I've negotiated make-good agreements both on behalf of landholders and companies.

20 I also speak for those that aren't in this room, the forgotten employed. There are many people in this community who are on two or three part-time jobs, and I've analysed in my submission, in detail, the real factors around the employment characteristics of this region, and I'll come to that in a moment and why it's  
25 important. This – my comments are mine alone, and they're not necessarily the views of Hume Coal. I sort of state one simple fact. There's been a lot of criticism of POSCO. POSCO is the largest non-government purchaser of Australian exports, some \$7 billion per annum, and I'm, quite frankly, pleased to support a business that underpins this nation's economic security.

30 Now, there's a lot of talk about social licence. I'd like to have a little discussion about social licence from my perspective. I want to firstly talk about what environmental approval means. Environmental approval is balancing costs and benefits, weighing competing interest for the community as a whole. In my view,  
35 social licence is not the sole preserve of the loud and the noisy. Some say that if landholders object and refuse access to land for development, then planning approvals should be refused by government. If landholder opposition is the threshold test – or were the threshold test for SSD projects in New South Wales, these projects here would not have proceeded.

40 I was involved in these projects, so it's not an exhaustive list, but it started with the Northparkes gold mine, the Cadia-Ridgeway gold complex which is now Australia's largest gold mine at Orange, the Lake Cowal gold mine, the Visy pulp and paper mill at Tumut, the Bengalla mining complex, Mount Arthur North, Mandalong mine,  
45 Austar mine and Moolarben stage 2, the last one being landowner objections by another mining company. But it also applies to government projects. For example, at the moment, I'm representing businesses that are affected by WestConnex, Light

Rail, Sydney Gateway and the M2 motorway, not to stop the projects but to accommodate, mitigate and compensate.

5 A balanced assessment requires planning authorities to do a number of things – in this case, to apply the EP&A Act and the mining set, and the mining set talks about balancing competing interests. I don't believe the DP&E assessment report was very helpful to this – to – in assessing this project according to the mining set criteria. I have attempted, in my commission, to deal with some of those matters. Clause 4.15 of the EP&A Act also requires consideration of any VPA offer. I haven't noticed on 10 the commission's website a copy of a VPA offer which I believe was lodged with the Department of Planning on the 6<sup>th</sup> of September 2017.

The background to that is that the council simply refused to have any discussions and was actually in breach of the Minister's guidelines where VPA offers are meant to be 15 discussed at the time of lodging a development application. I've put this particular graphic up here to talk about a couple of things. One is there's a lot of discussion about additional economic activities in the region being clusters. I just want to say one thing about that. I fully and absolutely endorse the cluster proposals that have been put forward here in this room but throughout this community.

20 To – one of the reasons for that is I believe in economic diversity, but the reason why I've put Hume – the Hume cluster – there was a gap in the system, but the Hume cluster is there for the same reason that I'm going to talk about now about all the other clusters. The activities that are proposed by these clusters – so in agritourism, 25 artisan food and produce or on-site cafes, restaurants, roadside stalls, etcetera – are actually prohibited by the zoning.

So when you do an assessment against land use, you need to look at the existing zoning for the land use in this area. The project area is very restricted to agricultural 30 pursuits, lifestyle properties and small scale farm stays. 43 per cent of the Wingecarribee LGA is zoned E3. Combined with protected lands, virtually all of the Wingecarribee LGA has tremendous zoning restrictions for what people can do on their properties. And as I said, I full support what people want to do with the clusters. And equally, Hume is also affected by the E3 zone, prohibiting mining, and 35 so it relies on clause 7 of the Mining SEPP to receive approval.

DP&E assessment report. Well, I was absolutely gobsmacked when I read the DP&E assessment report. This is probably one of the worst assessment reports in my 40 experience since 1981. Firstly, the DP&E have cherrypicked submissions and expert evidence to form – to fit a predetermined narrative. The DP&E equated political interest with public interest. DP&E failed to deal adequately with differences of expert opinion, including expert opinion from the various interest groups, particularly on mine design and water. The DP&E was misleading in its use of the term “high risk activities” and I went through the regulations and the regulations 45 have over 30 high risk activities. Virtually everything in an underground mine, any significant activity in an underground mine is actually a high risk activity and has to be notified to the regulator.



So to actually then say because it's high risk it should be refused is an absolute nonsense. DP&E misunderstood the mine use technology to – which is absolutely designed to improve safety, minimise risk, both human and environment. The technology that's being employed, for example, the inertial guidance systems that are  
5 used in cruise missiles, the Gamma Horizon controls that are used in industries elsewhere, have been brought together by the CSIRO and are now common practice in underground mines. So much so that the operator is not the person that is – causes any particular risk to the mining design. Professor Galvin said the risk to the mine design and the risk to the panel structures depended on the operator. That is not the  
10 case. These plunges can be driven 120 metres using continuous miners operated remotely, semi-autonomously, and they can – they have a level of error over 120 metres of three centimetres.

So just before Christmas a longwall mining unit at the Grosvenor Mine in  
15 Queensland was operated remotely from outside the mine. We expect, by the time this mine is operational, that these continuous miners will also be operated remotely, again, protecting the health, welfare of the workers but also maximising production per employee. And that is the critical element in terms of making the mine economic. The DP&E has also misused the precautionary principle in a totally  
20 inappropriate manner and I'm happy to expand on that but not just yet. DP&E also downplayed the economic significance of the project and I want to turn quickly to that.

They talk about direct net benefits of 373 million and we see now that can be  
25 misused. Somebody yesterday actually divided it by the number of years and said the mine wasn't worth anything. Well, you can't do that with NPV figures. But what really annoyed me was the fact that they completely ignored the indirect benefits so the total benefit is nearly half a billion and of course the local benefit's around 162 million. Now, the royalties to NSW, NPV wise, is about 132. But I like  
30 to look at things in cash terms. This project will have a \$650 million capital injection, up front, with the two projects. Operating expenditure in cash terms, 2018 dollars, is 2.89 billion or \$104 million per year.

The royalties are actually, in cash terms, 345 million or about, on average, 18 million  
35 a year. Now, we'd love to pay royalties on an NPV basis because by the time you go to year 10 we'd only be paying 50 per cent and by the end of my life would be paying 26 per cent. So cash every year is paid to the NSW Government. Significantly, also, there'd be \$764 million in wages paid by this project. In terms of contribution to NSW revenue, it will be the largest contributor to NSW Government  
40 revenue of any local business and possibly more than all other businesses in the Wingecarribee Shire combined. Other businesses pay payroll tax and land tax, they don't pay royalties.

So in terms of the total income to the NSW Government, it's very – a very  
45 significant contributor. Now, why did DPE get it wrong? Well, the first thing they did, their expert used treasury guidelines, and the DPE says, "You should treat labour as a cost." Well, I had a look at the treasury guidelines, and the treasury guidelines

say the – they should be used for public projects, programs and policies across New South Wales Government. Public projects regard labour as a 100 per cent total cost to the taxpayer, and appropriately so.

5 But the treasury guidelines should not be applied to a private sector project. The guidelines that should be applied – and I’m having trouble trying to understand why they did this. It was both – the treasury guidelines talk about the need to calculate a reservation wage, the government’s expert – probably because he previously worked for treasury – completely discounted the \$764 million in wages as a benefit and just  
10 ignored it. Well, that’s arrant nonsense. Where did the DPE also get it wrong? Where, they downgraded the contribution from 373 million to 127 million on an MPV basis based on that false premise I talked about earlier.

15 Why are wages important? Well, let me give you an example. I would have thought the Southern Highlands or the Wingecarribee area was actually a wealthy area. Well, it’s not. If you have a look at the median employed income – employee income, it is 15 per cent below Wollondilly and five per cent below Goulburn. I will run very quickly through these things, because I’ve calculated in the document that I’ve presented the strategic significance of the Hume Coal project. The ACCC has made  
20 a very interesting study on the significance of the Southern Coalfield and the importance of being – providing competitive coal. Also if the coal is used in the POSCO FINEX process in Korea, all of this coal can be used for steel making with a significant reduction in emissions.

25 That is – that was endorsed by the Coal Free Southern Highlands’ own expert, Tim Buckley. Water, I can go in – talk at length about water, and I won’t, because I’m going to run out of time. But it’s all in the document. I think that what’s important, there is plenty of water in this system. There’s – Hume Coal requires two gigalitres of licences from zone 1. That’s 16 per cent of the licences. They have acquired  
30 virtually all of those to date. I was going to talk about this.

What’s important about this graph is that the grey area is water that is left in the ground. It is never extracted. Even though they are required to licence this amount to the top of the grey area, the water in the grey area remains in the ground and is  
35 available to other users. And that’s a very important fact, because the common perception around is that Hume Coal is going to extract two gigalitres of water each and every year. That is not the case. It’s an average of about 500 mega litres over the life of the mine each year. Thank you very much.

40 PROF FELL: Thank you. Now, your information will be made available. Thank you. Questions?

MR GATES: Ian, you mentioned in passing the misuse of the precautionary principle.

45 MR WISKIN: Thanks, yeah. Yes.

MR GATES: Could you just very briefly explain what's meant by that.

MR WISKIN: Yes, I can, and I anticipated the question, and I actually have written down an answer. The precautionary principle has two tests that have to be applied.  
5 The first condition precedent, if you like, are the threats of serious or irreversible environmental damage. So you have to – for example, a reduction in water levels from, say, 94 – in 94 bores, is not serious in – it's not a seriously – serious irreversible environmental impact. The impacts reported are temporary by comparison with other activities. They're reversible and occur at different times on  
10 different land across the area of inflows. The second condition precedent is that there has to be a considerable level of scientific uncertainty as to the nature and scope of the environmental damage.

For example, the water modelling has shown 94 bores affected at the 67<sup>th</sup> percentile  
15 and 118 bores at the 90<sup>th</sup> percentile. Now, the 90<sup>th</sup> percentile is actually unlikely to occur even in extreme circumstances or conditions. The difference is 24 bores. In fact, the application of the ..... uncertainty guidelines goes a long way to removing uncertainty around the water model, so there is no considerable level of scientific uncertainty. Therefore, the second condition precedent is not satisfied. Even if the  
20 precautionary principle applied, all that principle does is that Hume Coal is presented from using the lack of full scientific certainty being used as a reason for postponing measures to prevent environmental degradation.

DPE has not proposed a mitigation measure that Hume Coal has tried to avoid  
25 implementing by reason of a lack of full scientific certainty. Hume Coal has, however, proposed a range of mitigation measures to reduce impacts and prevent environmental degradation. Instead, DPE have used the principle as a reason for refusing the project. But the courts have specifically warned that the principle not be used to refuse a project, because that will “result in a paralysing bias in favour of the  
30 status quo and against taking precautions against risk”. The precautionary principle, so construed, would ban the very steps that it requires. This gives rise to the logical question: how can the precautionary principle be used as a reason to implement a mitigation measure to prevent environmental damage arising from a project if there is no project? That is clearly impossible. So the DPEs application of the  
35 precautionary principle is totally wrong under the law.

PROF FELL: Any further questions? Thank you.

MR WISKIN: Thank you.  
40

MR FREE: Thank you. Can we have Ken Wilson, please.

MR K. WILSON: My name is Ken Wilson, a resident of Berrima. Thank you for  
45 the opportunity to speak to you today. Governments have a responsibility to protect our environment and natural resources. There has been a lot of mention during the last two days of water. Our country is one of the driest in the world with a current drought covering over 85 per cent of our country and global warming being a reality.

No one in their right mind could approve this proposed coal mine, especially when the Department of Planning states that this proposal would use more water than any previous mine application they'd ever investigated, and right in the greater Sydney water catchment area.

5

The department has it right with their refusal. I would like to talk about the methodology of mining, ie, pine feather. This unproved and untested method must be a major concern to OH&S. My concern is if you go back to when the Hume Coal – when Hume Coal stated that, unless they gain access to the properties above the mine area to drill test bores, that it would be impossible to test the geology of the underground conditions, and this would be detrimental to the mine's operation. As you know, they lost the case and never gained access. Therefore the situation of having employees below ground, even doing maintenance or setting up systems ..... previous speaker said everything is going to be automatic.

10

15

I've been in the engineering business for a long time, and things break down. People do have to go into mines. People do have to access things. Nothing ever goes perfectly correct. So that is a situation that really concerns me with the unknown situation, what those conditions might be, because the test bore holes were never, ever carried out. It's a very important thing – I think, occupational health and safety, we have – we should be looking after our employees and putting them in that risky situation is very dangerous. My other comment is that Hume Coal refers to 300 employees.

20

25

Now, a past speaker said, if I take him right, they will probably have hardly any, because it's all going to be automatic. But, if true, that's at the peak of production, and with the build-up and closure of the years it's more likely a mean of 200 people, not 300. I think that's a very important factor, because they keep on boasting 300 people. It is not true, over the lifespan on the mine. Definitely not true. I have no faith in Hume Coal or Costco that have never operated a mine on their own to be able to carry out this task. I therefore hope your decision will support the Department of Planning and refuse this application. Thank you.

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35

PROF FELL: Thank you.

MR FREE: Can we have Kerrie Barnett, please.

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MS K. BARNETT: Good afternoon, everyone, and thank you for this opportunity to speak to this Commission, and I'd like to also greet everybody here, our great community. I speak as a local resident who will be affected by the proposed development. We own a property in the Berrima area where we have lived and raised a family over the past 30 years. We now have three grown children and their children living in the Highlands. This development will affect the quality of life of all of us who treasure the South Highlands as a wonderful place to live and work and raise families. Traffic, noise and reduced air and water quality are the obvious problems for health and enjoyment of daily life.

45

The flow-on effects into loss of employment in the tourism, hospitality and agricultural industries are equally serious. Overarching all of these things is the loss of food production land and the capture and conservation of clean water within reach of Sydney. These are problems of national concern, and the negative effects of mining on the safety and purity of our water aquifer cannot be reversed. The work done by the experts in explaining the scientific basis for the need to resist these developments puts the case for commonsense and the need to preserve this area for future generations. I believe we should be supporting increased food production here.

The land and climate offer great opportunities for feeding ourselves and the wider region. And while we maintain our pure air and water, highly sought after organic produce is an option. Think of the jobs that this will bring. There would be a need for a range of skills across the whole process, and it could involve our young people at every level. Productive work in a healthy and beautiful environment builds a strong and supportive community. These are the firm foundations of our very human hopes and dreams, and we must remember the importance of a life which sustains our hearts and souls and builds a future for those who follow. Please, let us act today to safeguard – to safeguard our land and its gifts. Say no. No to coal. But say yes to our wonderful community as we build a bright tomorrow for us all. Thank you.

PROF FELL: Thank you. Thank you.

MR FREE: Thank you. We're going to take the lunch break now. So we will resume at 1.30.

**RECORDING SUSPENDED** [12.56 pm]

**RECORDING RESUMED** [1.35 pm]

PROF FELL: I wonder if people would come back to their seats, please, and we'll get this show on the road.

MR FREE: And if Pamela Wright please could come forward as our next speaker.

MS P. WRIGHT: I'd personally like to acknowledge and pay respects to the Gundungurra People, their elders past and present. I am opposed to the Hume Coal and Berrima Rail Project. Like the majority of landowners here in the Southern Highlands, one of my main concerns is the availability of water, as I'm sure you've heard a lot of lately, and should Hume be successful with this mine project, the lack of it. On our farm, we have no town water, no mail deliveries, no garbage collection but we do have a bore. We chose this property for its isolation and that we could access water. I recently checked the water licence, which was dated 1981 and was marked existing.

I have also been led to believe that we will lose our bore in the construction of the mine, so we don't have to wait for it to run dry. Since we moved here in 2015, into the Belanglo State Forest, we have planted over 300 trees and have been able to keep them alive, even through the 2018 drought. My husband dug every hole by shovel  
5 and crowbar and I physically planted 250 of those trees along our border. They are alive and thriving today because we had access to water. When I planted them, they were about 20 centimetres high and today they range between one and a – one and a – one and a half metres. We do not take this bore casually or are flippant with the precious water.

10 We have three dams and three large water tanks but during 2018, two of the dams were bone dry and we had to resort to using bore water for household consumption as our tanks ran so low. Our bore water is pure and crystal clear and it breaks my heart to think of this valuable resource being used to wash coal. We have a small  
15 herd of cows, a large vegetable garden, fruit trees, flower garden and our younger border trees that all need water to stay alive. My aim this year is to plant two acres of Eucalypts to form a corridor from our property up to the indigenous forest. My reasoning is threefold: to encourage bees, as food for koalas and to combat the effects the cows have on the environment.

20 In 2017, the Southern Highlands Koala – sorry – Koala Conversation Project surveyed our property to identify habitat for our endangered koalas. We did have a sighting recently so by planting Eucalypt Gums, Casuarina and Paperbark, this will provide a food source and safe environment for these native Australians but we must  
25 have access to water for this to succeed. Another serious concern for all – or almost all – is the effect of climate change.

We have a moral responsibility to leave this earth, if not better, then at least as good as we found it. The burning of fossil fuels is damaging the environment at a  
30 hastening rate. At present, we still need coal power but we don't need any more coal mines and I encourage the government to look to renewables for future power and, with this in mind, I respectfully ask the commissioners to refrain from granting permission to Hume Coal for this project and to thank them for allowing me to speak today.

35 MR GATES: Pamela, you said your bore was going to be destroyed by the Hume Coal; have they contacted you and what – what are they going to put in place of your destroyed bore?

40 MS WRIGHT: No, they – they haven't contacted. We did receive previous communication, just talking about purchasing the bore. No, I noticed on – when I was at one of the meetings that because of our situation in the Belanglo State Forest, it's quite high to where the mine will go through, and I was told that there were two bores there, they will go in construction of the mine, but I haven't been in  
45 communication with Hume at all.

PROF FELL: Thank you.

MR FREE: Thank you. Can Peter Brooks come forward, please.

MR P. BROOKS: Good afternoon. My wife and I and our company licensed the Hume Coal land to run a farm. We live onsite, approximately two kilometres from  
5 where the stockpile will be placed. We've lived here for three and a half years and we plan to be – intended – in the project for the long term. So what we do, we grow high value lamb, cattle and grain. Last year we produced enough lamb to feed nearly 29,000 people for a year and 64,000 people with beef for a year. I'm just going to run through some photos here so you can understand some of the things we do.  
10 That's Mereworth in 2017, looking back down towards the house.

That's Stonnington, which – where we live, which looks back over towards Boral. That's a rye grass pasture. That's the Belanglo State Forest Road boundary there and that was only about three weeks ago. That was in November '18. That's looking  
15 back towards Boral; if we went a couple of degrees further round, you'd be able to see the Boral plant. That's looking back over the Hume Motorway and that's a hill that used to be covered in Serrated Tussock. That's us sowing some canola there in December '18 and looking back over New Berrima and back towards Midway Road. I'll flick through. We use – all our equipment is – is keeping up with the latest  
20 technology; that's just an example of it.

So the way we grow the crops is we run a – a best practice cropping system. The reason we've gone to an annual system is the land was quite degraded when we took it over – when Hume took it over. It was covered in Serrated Tussock, fences were  
25 falling down, the previous owners and managers had let it fall into a pretty poor state. We generally sow the crops between February and March so we're at a lull in our – in our cropping system at the moment. As soon as we get rain, we'll continue our sowing process. We've already sowed about 400 hectares of canola this year. We have done quite a large liming program, we use an agronomist and we also measure  
30 our crops to work out our stocking rates.

So if we look at the improvements that have been made to the Hume project, we put 1000 tonnes of lime on, 1200 cubic metres of chicken manure, there's been six  
35 kilometres of new boundary fence, 40 kilometres of dilapidated fences removed, 900 hectares of that land has been cleared from Serrated Tussock infestations and there's some quite good photos in the past of the whole place being covered with Serrated Tussock. So my point there is that by Hume amalgamating these properties, it's allowed them to be brought back into a working order. I've also put three new sets of cattle yards in so the question is how we work with the mine.  
40

We can see no effect of the mine's operation on the production rates of the animals or the crops. We'll in fact be the first responder if there's an issue because we'll be the first ones affected. The infrastructure design allows for the farm to continue on. There'll be animal viaducts, additional yards and that comes from working  
45 effectively together and, you know, as parents of five children under 17 and employers of people with children, we've still – we have no concerns living on the boundaries of the project. Just go back to water – so we don't intend to irrigate on

the farm; it's a – it's a dry land farm. Surface water is adequate, however, we do back it up with bore water and our sheep drink about four litres a day and 40 litres per day for cattle.

5 Now, that'll change depending on the size and the temperature but that's what our water usage is. Quite a lot of spinoffs from the farm, we have – we use local carriers, local stockyards and local vets and local mechanics. Give you an idea of the farm, where it was four years ago, I think they turned off 300 cattle in the year; last year we turned off 6000. There was about 12,000 lambs turned off so far this year and  
10 about 300 before that so the farm's come a long way. I'll just show you something so everyone remembers what it used to be when it rained – it's coming up, I'm sure. The – we are – we are in a, you know, an incredible drought at the moment and we're quite proud of what we've been able to do with the property in reducing the weed burden. And that's looking back towards Boral so it can rain. Thanks.

15

PROF FELL: Thank you. Thank you, very much. Any questions?

MR GATES: No, nothing.

20 MR FREE: No, thank you.

PROF FELL: Thank you.

MR FREE: The next speaker is Peter Stone.  
25

MR P. STONE: Thank you for hearing me, Commissioners. I live within the lease area, but a considerable way from the proposed workings and it's not likely to affect us directly only if there were an extension of the mine, which is always a possibility, but I'll have been carried out in a box long before that occurs. My principal concern  
30 is with some of the risks that haven't been canvassed entirely. It's difficult to assess some of these risks and I don't envy the Commissioners the task of considering these risks against the perhaps uncertainties that are put forward by the proponent of the mine; certainties which can't be accepted at their face value.

35 Can I start with the risk connected with the recharge of the aquifer. Nobody can say what rainfall is going to be like over the next 30 years. What we can say is that it's not going to be as it was 10 years ago, and the rainfall figures that have been provided are a very poor guide as to what's going to happen in the future. It is likely that the aquifer will remain depleted for a very considerable time. It's possible, even,  
40 that it will never recharge to its old level; that's probably the extreme risk, but then one must look at extreme risks as well as lesser risks. It must all be taken into account, I would suggest.

45 Another risk is that the mine might close or become unworkable. We don't know the risk of that. We don't know the probability of it, but if it does occur, then a great deal of damage will have occurred for very little return. There's a risk about the proposed supplementing of water to farmers affected by the loss of bore water. It's



hard to imagine where Hume Coal would be able to find sufficient surface water to meet its requirements, even if – and of course, this is most likely to occur in a period of drought. Even if they do find surface water, it's still robbing Peter to pay coal; it doesn't subsidise the farmers really, it subsidises the mine.

5

The probability is that they won't be able to meet that obligation that they've said they will undertake and they'll be able to throw up their hands and say, "Well, we've done our best. There's nothing more we can do." That is not a very satisfactory situation. What I suggest, Commissioners, is that you give careful consideration to the more extreme risks and that should be a substantial factor in your considerations. Those are my submissions.

10

PROF FELL: Thank you. Excuse me. The – when you mentioned recharge of the aquifer - - -

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MR STONE: Yes.

PROF FELL: - - - was your concern there the – the water that the mine takes or just the climate variation that we're seeing?

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MR STONE: Well, it's – it's a combination of both, of course. It's the water loss and the inability of rainfall to – to cover that – to – to cover that loss. There may be a problem of recharge of the aquifer even without a mine because of the change in rainfall, but it must necessarily be a much greater problem if there is a mine.

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PROF FELL: Thank you for that. Now, there was – thank you.

MR STONE: Thank you.

30 MR FREE: Thank you. The next speaker is Shane Wellings.

MR S. WELLINGS: Giddy. My name is Shane Wellings, and I don't have a science degree. I am not involved with Hume Coal. I am not involved with Save the Water. I am not involved with any of these things: facts, figures and science. I am not a mathematician. I am not a scientist. I am not an engineer. History of the project. I have been listening and watching this project develop over the last eight to nine years. I have listened to and watched groups organise. These groups have organised themselves in such a way that they have stopped talking about Koalas as one group, platypuses as another group – or platypi or whatever they call them.

40

These things have mulled themselves into one structure: water. We keep talking about our water. We – we listen to people with their problems of water, and I understand water; it's wet. We have four sewerage treatment plants in the Southern Highlands. In times of flood, where does the sewerage go? It goes down the rivers. Human beings' waste carries more heavy metals than any other animal. No one has talked to me about that.

45

Other things. 400 jobs for the start of this programme for the first two years. We need jobs in the Highlands. I live in the Highlands. I love the Highlands. I am not here representing any groups or the employee that I have. I am here for people. The silent people that don't talk because they're scared to, or fearful of repercussions of all sorts of groups, which I have encountered myself.

300 full-time jobs. I'd like to see 50. I'd like to see 10 good quality jobs. These jobs aren't \$200 at packing shelves at Woolworths, these are good quality jobs and we need it. History. I go to the Wingecarribee Shire Council meetings. In that time I have been going to the meetings, there was a motion put forward 2015. This motion was put forward by Garry – Councillor Garry Turland, and second by H.R. Campbell. And I quote:

*Council hold a briefing session in relation to asking the community at the next council election on the 2016 items they would like for the community poll and community engagement to survey items they might be interested in.*

It sounds a bit funny, but I was there when it was happening, and it was in regards to a poll for Hume Coal. It even rhymes. That poll was taken apart. I've been put to the meeting the vote on the motion was tied at four all. The councillors, two of weren't there. 13 councillors; we only had nine. Four votes for, four votes against. That is fifty-fifty. The actual casting vote was done by the mayor at the time, Councillor Larry Webber. So, it was squashed. The poll didn't happen. That information would have been clear and decisive of this region, and telling us what, when, who and how. It wasn't.

The information that we need is that sort of stuff. The doorknock. I have listened quite interested over the last two days. I never got a doorknock. No one asked me anything about the coal mine. Information has flowed – if I've asked from anyone such as some people in the water for not coal they have given me their point of view. I have talked to Hume Coal as an independent. No one knows who I am. No one knows what I do. I love social dynamics. I like the way we've combined our community. But we've also divided it in some way. There are people that would like to talk about dust. I have seen the amounts of dust coming out of Bowral, which is being controlled at the best of their capability with the technology today.

That is an old plant, and it is constantly being repaired. They're talking a new coal mine that has best practice in front of it. The best that human beings can possibly do to this date. It hasn't started yet, so more technology is coming through as we speak. We are improving the human race slowly. But society moves at the speed of the slowest person. This hinders every capability of growing in – exceptionally in the human race. Save the planet. I love that. Save the planet. We don't need to save the planet. The planet doesn't care. It would sooner us not be here. It would kick us off and say I'll do dinosaurs again. It will repair itself when we're not here. We are like a cancer cell on the planet.

So I'm looking at both perspectives. The most important thing is that we go forward with economic growth. Constantly thinking about our future for our families, and growth in our whole ecosystem of humanity. I find it hard to speak publicly. I do find it very difficultly. Hundreds of millions of people around the world would say  
5 that we're having problems. Our planet is dying and it's broken, and we've got to fix it. I can sit at home with my special light bulb and my shopping bag for life. Will it fix the planet? I'm an avid scuba diver. They call me the garbage man. To date I've pulled over two tonne to three tonne of rubbish out of our oceans. Are we fixing that? No. Will a coal mine help?

10 Yes. In one aspect. Economic growth. We are still running under a Westminster system. A democratic society where we have to be influenced by financial gains for us to support the world. When we can change that, we have no currency and no other ulterior motives, we will move forward. To this day, we can't. Everyone is  
15 divided. Everyone has to have their say. I believe that this coal mine will be beneficial for our area.

Yes, there are concerns. Yes, we have to make sure it's right. By making it right, we have a lot of people around this coal mine that have problems with what they  
20 perceive is water, ecological, but best practice to human beings today is what they are going to use. This is a benchmark for future coal mining. If it is ecologically sustainable, how lucky are we that we have proven that it can be done; that we can coexist. Mining isn't going to go away, and people still require objects. We all drive cars. We all use tyres. We all go on roads. The Hume Coal Mine goes next to the  
25 Hume Highway. The Hume Highway to date, last time I checked was 700 to 1200 movements an hour – semitrailer trucks moving through.

Fine dust particles from a semitrailer truck are fairly heavy. They come down – they come up the hill just out near Wingecarribee River, and you watch the smoke. We  
30 do have EPA laws on trucks now which stem the flow. We have coal mines. We have coal burning electricity. I was lucky enough to work at Bayswater Power Station doing the filtration system. The filtration system on Bayswater Power Station is second to none when it was built 25 to 30 years ago. It's outdated technology. It needs to be upgraded, and we constantly upgrade as we learn.

35 Human beings have to learn by our mistakes. We don't want to make a mistake, but when we do, we have to be ready and willing to be able to fix the problem as it arises. These problems can be overcome. People can move forward. People can take their perceptions of what is and what isn't, but always think that we are running  
40 a race for humanity. The planet will survive, regardless of whether we're here or not. Whether it's the same planet, whether it isn't.

We have 70 years – I hope a lot more, but 70 years of productive life, then our brain is just sitting there and contemplating what's next. What is next? I feel that we have  
45 to go forward with economic growth in the area. I have looked at policies in place for agriculture. I have looked at the land stripping in this area of topsoil by developers. I have looked at water mismanagement by a council, by people, by

everybody. Who changes a tap washer? I do, because I believe it is a resource that we can't lose.

5 This resource can be managed. It is H<sub>2</sub>O. It is water. The aquifer is an aquifer that is very, very precious to everyone. It is also precious to a coal mine. The farming community will always be a farming community, if they want to farm. Generation proves that farming is slowing down. From 150 dairy farms that were mentioned today, down to seven. I find it interesting that when I was a kid I used to pick potatoes in Crookwell. Certified seed. That industry is gone. There are a lot of  
10 industries in the farming world that are changing.

Best practice. We have over the years subdivided, turned our properties into hobby farms and producing little to nothing. Some of the farms are – I must quote – that they are farming and they are working hard. It's not easy being a farmer; I've tried  
15 it, and I failed. Growing animals, feeding – feeding plants and so forth. I have a property out of town which is in Taralga. I have never watered it. It is covered in trees – gumtrees. I don't use any water there because it's just impractical. It has a creek out the back that used to have platypus in it.

20 There is no coal mine near it, no diamond mine, no tin mine, no copper mine, no gold mine, no any sort of mining whatsoever. The platypus have gone. Why? I don't know. At the back of Alpine, there is a small creek. It used to have platypus and it used to have yabbies in it. When I was a kid, I used to go there and do yabbing and I have seen platypus. Since the Hume Highway got  
25 diverted from and going up Catherine Hill, those platypus have also gone. That creek is no longer a drain or anything. It is just a trickle.

These things change all the time. If you look at our area, people try to say that we are being ecological, we are looking after the planet. But we do not look at  
30 everything. We're looking at one thing – a coal mine. Are we looking at companies coming from China and buying land and taking the topsoil? Are we looking at all these other variations, and are we looking at our youth? I look around today and yesterday, and I see the demographic of people. I want to see our youth here. I want to know why they're not here. They need to be here, because this is their future, not  
35 mine. I'm 50. 20 years more – 25, if I'm lucky – then I start slowing down and I use my brain for a book.

This, I will sum up, with what Hume Coal said – hundreds of millions in salary and wages, hundreds of millions available to local businesses, suppliers, surface  
40 infrastructure in close proximity to an industrial hub, which it is. The industrial hub is making dust as we speak. Surface infrastructure – Southern Highlands serviced by existing rail and Hume Highway. Opportunities available in mining equipment supplies in Southern Highlands. We had two of the largest. They're Komatsu and also ..... millions in royalties paid to the government. Maybe we can get a school  
45 back. We've lost one already due to the decline in young people in the area. The Sutton Forest public school has been sold. Thank you.

MR FREE: Any questions?

MR .....: No, I don't have any questions.

5 PROF FELL: Thank you.

MR FREE: Thank you, Mr Wellings. Can Susan Forrest please come forward.

10 MS S. FORREST: Hello, and thank you for the opportunity to speak today. Thank  
you to those who enshrined our right to a voice through the democratic process. I do  
not like to hear my own voice, so this is difficult. I stand here as a representative like  
so many people have done over centuries past when threatened by commercial  
development to give voice to the thousands of people – women, men and children –  
15 who will be impacted by this mine. I could say or maybe should say it could be  
millions of people who will be affected if and when the Sydney water supply is  
contaminated. It is not only those who have made their lives here in Berrima ..... but  
all residents in the region who will be negatively affected in one or other. One  
example is tourism, the first and most obvious for our historic town of Berrima.

20 I believe that the government is supporting or looking at the value of the contribution  
Berrima itself makes to the success of this area as a tourism drawcard. With the  
region's many attractions, both landscape and built, and proximity to Sydney,  
tourists have been coming here for more than 100 years and tourism is well-known in  
that its influence thoroughly penetrates society, politics, culture and, above all, the  
25 economy. The Southern Highlands is an area of considerable growth enhanced by  
tourism and the development and expansion of population, leading to housing and  
business growth in many towns and villages across the region demonstrates this.

30 Ask any local about the influx of visitors on the weekends, spending their dollars in a  
regional area. No one can tell how many businesses will be adversely affected if this  
mine goes ahead, let alone the impact of the dust on important heritage buildings and  
sites. And could I just make a note that we live – we've lived for six months only in  
Berrima. I lived for the rest of my 60 years in Young in New South Wales on a farm  
there. We lived on tank water and bore water and the note about drilling deeper  
35 bores to make good is just not necessarily a way to make good. Thank you.

PROF FELL: Thank you.

40 MR FREE: The next speaker is Wendy Alexander. Is Wendy Alexander here?

MS W. ALEXANDER: I'm coming.

MR FREE: Sorry. I didn't see you there.

45 MS ALEXANDER: Sorry.

MR FREE: Thank you.

MS ALEXANDER: Dear Commissioners, my name is Wendy Alexander. I am a local resident. I live in Medway, adjacent to the Hume Coal Project's proposed coal stockpile and processing area, and I thank you for the opportunity to comment today on the findings within the Department of Planning and Environment Report.

5

My husband and I are signatories to a conservation agreement over our property, Billarimba, which was created between the New South Wales Government and us on the 4<sup>th</sup> of November 2010. Amongst other things, the agreement, which encompasses about 91 hectares on both sides of the Wingecarribee River, states that our property is now part of the conservation partners program; that we are active partners in managing the state system of protected areas and that we must facilitate access to a range of monitoring and support services; that this is a formal agreement under the New South Wales Act; and that the agreement is in perpetuity and binding upon current and successive landowners as well as the New South Wales Government.

15

I believe the findings of the department's assessment report have the potential to implicate the New South Wales Government in a breach of its contractual commitments were it to approve the Hume Coal Project. Billarimba contains rare and endangered plant species, amongst which are the kunsia cambagei, eucalyptus apiculata, and grevillea raybrownei, the brush-tailed wallaby once lived here. A koala corridor, as identified by experts from the National Koala Survey 2014, shows or confirms that koalas are living and moving through Berrima and Medway properties as well as Billarimba and that this area is a crucial habitat imperative to their breeding and, therefore, to the future of the species. And the property adjoins Crown land linked directly to Bangadilly National Park, which is an active and proven wildlife corridor.

20

25

My husband and I joined the Conservation Partners Program in 2010 in order to better protect the extraordinary wealth of wildlife that we have discovered. The Department of Planning and Environment's assessment of Hume Coal's EIS confirms our belief that the project is not in the public interest. Of greatest concern are statements in the report about the mine's untested pine feather design, the risk of mine water being discharged into surface water courses, the fact that Hume Coal has not assessed this risk or proposed a water treatment plant to prevent polluted water reaching the water catchment, the significant impacts on the groundwater table's drawdown, the potential for coal dust particulates to affect both residents and wildlife, the uncertainty about the mine's design, and the methodology underpinning the geotechnical model.

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It is extraordinary that the department says it has never been in a situation where there are such large predicted impacts on private water bores, that the New South Wales Government could contemplate the Hume Coal Project is compatible with the conservation agreement it has entered over Billarimba. The threat to the groundwater table cannot be dissociated from the threat posed to both wildlife and the habitat we have agreed to protect in perpetuity.

45

After nearly three decades of living at Billarimba, I can verify that its native fauna is exceptionally shy, sensitive to human movement, and particularly active at night. Billarimba is a very quiet place, virtually unaltered by development and is surviving today despite showing signs of stress caused by the current drought. Even if  
5 operating conditions were applied, it would be impossible to mitigate the cumulative effect of its 24 hour a day, seven day a week noise, vibration and night light that will be generated.

10 If the New South Wales Government approves this mine, POSCO, a company that has never built a coal mine before, will be granted approval to risk the preservation of Billarimba by building an ecologically unsustainable project that is not in the public interest. Please recommend that the Hume Coal Project not be approved, but please go a step further and recommend that the exploration licence that Hume Coal  
15 owns be revoked permanently so that this vital habitat can be permanently preserved for future generations and not the subject of repeated attempts by the successive leaseholders to build a coal mine that will affect the aquifer. Thank you.

PROF FELL: Thank you.

20 MR FREE: Thank you. The next speaker is Jane Lawler.

MS J. LAWLER: Good afternoon, panel and ladies and gentlemen. My name is Jane Lawler and I live with my family at our property on Medway Road. Thank you. We share two common boundaries, south and west, with Evandale, historical  
25 agricultural land, now owned by POSCO Hume Coal. In 1998, we purchased a bare five acre block. Since then, we have built and established a home and garden. We have a beautiful place to live that we are very proud of, surrounded by good neighbours, friends and family. Our property will be severely impacted by the noise from the Hume Coal Project day and night.

30 We will be able to see this towering coal stockpiles from our kitchen living room window, directly south, at a distance of 750 metres. We are one kilometre from the main mine infrastructure and rail loop. We will be able to see, hear and smell this project 24 hours a day, seven days a week; welcome to our world. We rely on  
35 rainwater, we are not on town water, we are extremely concerned about our water supply being contaminated. We run a – when we run our bore, it flows into our dam and our stock and gardens have relied on it over the years and we are very careful with its use.

40 This water has to be protected; to see it disappear or to be irreparably damaged is not what we stand for as we believe the land should be improved to pass on to future generations. Our family building company has operated for 20 years, it employs five full-time tradesmen and always an apprentice. Another 10 are employed as main  
45 contractors, all local. Our 20 plus suppliers operate local businesses. For the last eight years we have lived with the pressure and stress of planning and decision-making without certainty. Our response to this constant reminder that our lives have changed forever has always been measured and reasonable but if this proposed

coalmine goes ahead, we will not be able to live at our home and would have to question our future in the highlands.

5 The outcome of this, the ripple effect, is extensive. We can only put forward our own experience and try to relay our value in the community. We work under an unknown future with all our plans put on hold. We question any outlay of capital as our property will not return what we have put in if there's a coalmine next door. It has been made clear to us by local real estate agents that if the coalmine goes ahead, our property will be unsaleable; this is our reality. We have waited for years for our  
10 future to be decided by others, the effect that this has had on us cannot be understated. As Medway Road residents, we have met on two occasions with the Department of Planning representatives, we met with their noise expert, we would like to take this opportunity to thank them.

15 While you're in the Southern Highlands, please drive down Medway Road and Liebman Roads and have a look at the area, the homes that will be affected by the noisy working end of the coalmine day and night, think of us and future generations that will suffer the effects on their water, their landscape being permanently damaged if this project goes ahead as your decision is going to change our lives. We hope that  
20 the correct decision for us and our families and friends, our neighbours and, most importantly, our community will be made not to approve this project in any way or form. Thank you for the opportunity to speak.

25 PROF FELL: Thank you.

MS TUOR: I just wanted to ask you a question about – you mentioned that you are 750 metres from the stockpile, from – you can see it from outside your window. What's your understanding of the dimensions of the stockpile?

30 MS LAWLER: It is 60 metres wide at the base, it goes up 20 metres high and that's that six storeys people keep talking about. So 20 metres high and it's, like, a kilometre long, like, maybe 800 metres but that – that kilometre and I know the country, I know the paddocks, we've lived there, we were – Evandale was part of my life before Hume Coal bought it, I used to ride over – I know the land, I know where  
35 it goes, I know that that's where it'll be. We know where it is, it will be in our vision, straight out our window.

MS TUOR: So have there been any photo montages or any regional impact assessment, as far as you know, been done from your point of view?  
40

MS LAWLER: Well, we know where it is; as for what they've done, I don't know.

MS TUOR: So you haven't seen any photo montages or anything like that.

45 MS LAWLER: Well, not from them. I've been to Mereworth on the days we were allowed to go and I've – I've been to everything I can go to to watch, to see and to



try to find out as much as we can because we are for it where – it's there, it's right there, the noise, the rail stream, the whole lot, we've got it so - - -

MS TUOR: All right. Thank you.

5

MS LAWLER: Thank you.

PROF FELL: Thank you.

10 MS LAWLER: Thank you.

MR FREE: Thank you. Can we have Ian Burns next, please.

15 MR I. BURNS: Good afternoon. My wife and I have owned rural property since late 1990s and for three years, 60 hectares at Fitzroy Falls. Our property depends on bore water for our grazing system, our bore is 90 metres deep. Water New South Wales paid half of the cost for fencing off the creeks to exclude grazing animals and for planting indigenous species of trees and shrubs. All up the cost was well over 100,000 so they paid half. So the New South Wales Government is paying farmers  
20 to improve the quality of water in the landscape and we have Hume Coal – the Hume Coal Project – potentially damaging the exactly same water systems, potentially, for hundreds of years.

I challenge the statements made at the IPC briefing by Hume Coal, particularly Mr  
25 Duncan's comment on page 8 that only 1.5 per cent of the population in the LGA were in opposition to the project. If he had read page 16 – and I'm sure you've all read page 16 of the department's report – you'll know that is completely untrue. The truth is that over 13 per cent of the adult population of the LGA wrote their name, address and signed a submission objecting to the mine and rail system, not 1.5 per  
30 cent. In addition, Battle for Berrima commissioned in April 2017 the Galaxy Research organisation to conduct an independent telephone poll of 400 residents across the LGA; they chose the list.

Now, let me give you the headlines. 59 per cent of the LGA residents opposed the  
35 Hume proposal. 47 per cent – almost half of the residents surveyed – strongly opposed it. Only 18 per cent of the LGA residents surveyed supported the mine. This morning you heard from Dr Wright, the only thing I say, it's fortunate that Boral own the Medway coalmine and not a \$2 subsidiary of a US – of a multinational. Hume Coal justifies the development of this large industrial complex  
40 on the Boral cement works that was commissioned in 1929, 90 years ago when the population of the Southern Highlands was 5000, not 48,000. There's a considerable impact on New Berrima, which is now a – made up of young families with young children, is no longer the dormitory suburb for the cement works.

45 Somewhere like Robertson where the rail line runs directly behind the primary school, it's estimated it's possible – maximum 34 rail movements a day. If you multiply that by 365, that's 12,410 rail movements. I'm not sure if you've been

through Robertson lately but you can drive across the railway line there and there is no protection for pedestrians and ladies – I've seen ladies push prams across there with their children at the primary schools. POSCO don't need the coal, they've got the FINEX process – I've included in my documentation the FINEX steelmaking process, which has not long – require expensive coking coal at all and produces less greenhouse gas. Thank you.

PROF FELL: Thank you.

10 MR FREE: Thank you. The next speaker is Diane Jensen.

MS D. JENSEN: Mr Chairman, members of the IPC, my husband and I are residents of Berrima. We made our decision to live in the Southern Highlands and Berrima in particular because of the clean air and water, the peace and quiet, the beauty of the gardens and surrounding natural environment and the uniqueness of Berrima as a heritage site. All these considerations will be adversely impacted by the proposed mine. Others have spoken to Berrima's significance as one of the few intact colonial villages in New South Wales. Apart from the wonderful buildings, the heritage value of the village is reinforced by the beauty of the surrounding natural environment and plantings within the town in both public areas and private gardens.

I have firsthand experience of the winds in this area, particularly the very strong winds from the south-west and west at certain times of the year and I believe estimates of wind strength and frequency by proponents of this project do not reflect reality. I consider it inevitable that over the life of this project, airborne dust from the proposed mine will cover Berrima, damaging both the health of residents and the buildings and vegetation that make this village unique.

I doubt the Hume Coal estimates of local jobs that will be created by this project, and I am sceptical that their much touted financial support for the community will continue, whichever way this matter is settled. But, in any case, I consider any potential to the local area is far outweighed by the likely long-term negative impact on Berrima as a desirable visitor destination. Our continued social and economic viability does not lie with mining, but in maintaining and growing Australian and International Tourism.

Attracting visitors by showcasing our heritage, the beautiful gardens and surrounding countryside, and the local produce and wines. I also share concerns raised by others about the adverse effects of this project on water resources, and the projected increase in heavy road and rail traffic. Mr Chairman, Berrima is one of New South Wales and Australia's few remaining historic villages. Its future and that of its residents should not be jeopardised by a project with so many potentially damaging impacts as this mine. Thank you for the opportunity to speak today.

45 PROF FELL: Thank you.

MR FREE: Thank you. The next speaker is Lynne Watson.

MS L. WATSON: Thank you. My name is Lynne Watson. I'm a resident of Berrima, and I'm the owner of ..... a local recruitment agency. And I've been fighting this with throngs of others for a number of years now, and it is exhausting. I believe, if approved, the Hume Coal Project will actually have a detrimental effect to the existing employment in the southern highlands. Employment growth and good jobs presently come from tourism, mainly, hospitality, health care, horse breeding, professional services, building services, and a lot now come from farm and gardens and agritourism businesses. These sectors exhaust because people are drawn to the highlands.

10 It is gorgeous. They're drawn here to set up businesses due to the environmental beauty, the ambience, the clean and green nature, for the gardens and the waterways. If this mine is approved we become a mining area. And mining, by nature, is dirty and noisy. Hume Coal constantly tell us about how many jobs it will create. 15 However, the EIS tells us that during the first two years of construction there will be 415 workers, and 90 per cent of these areas will come from other areas of Australia. They will live in a construction accommodation village built by Hume Coal, operate heavy machinery six days a week, and that's just the start.

20 Then we are told there will be 300 jobs in the peak operation phase over the next 20 years. And we're told that 70 per cent of these jobs will be locals. I don't believe this. Unless I don't understand what they mean by local. The skills are just not here. People will have to be relocated from other areas of Australia. It is definitely not the right place for a mine. We are too highly populated, too many bores will be affected, 25 and, of course, our water is too precious. And if our water is affected it would have a severe impact on tourism and the other businesses we hold dear that are the backbone of sustainable employment in this area. I ask that it's not approved. Thank you.

30 PROF FELL: Thank you.

MR FREE: Thank you. The next speaker is Judith Fisk.

MS J. FISK: Thank you. Thank you for the opportunity to speak here today. I'm a six generation. Three of those generations still live in the Robinson area today. 35 Some of those people to my generations, being my mother, myself and my daughter. Together, we have 157 years of living in the Robertson area. Firstly, I would like to ask how many people have journeyed along the Moss Vale to Unanderra line? If not, then you need to take the journey to be able to see what will be affected by the amount of volume of movement of trains if the mine proposal should go ahead.

40 Together with the noise and the dust pollution, disruption to the Robertson Public School adjoining right along the railway line in the centre of Robertson, and together with the farmers who need to cross their – stock across and machinery across the other parts of their properties in and around Robertson. Not many, I would imagine, 45 have travelled this route along the Moss Vale to Unanderra line. I would invite the members of the court here today to take the ride along the train route urgently to see what potential damage and impact on the community of Robertson and the rural

areas, together with the rural crossings, which are the only access for some properties.

5 What unique vegetation the farms, many of the houses and historic buildings,  
building items of heritage significance will be affected? This is of huge dollar value  
concern as well – that the impact of this mine will have on the southern highlands.  
Very significantly. The unique and magical train journey takes you through  
spectacular scenery along the voyage, along the edge of the Wingecarribee Dam, and  
10 then along the Wingecarribee swamp, through Robertson village and along the top of  
the escarpment and down the escarpment, meandering and winding along through the  
amazing countryside. This railway line is one of the few heritage railway lines.

15 And I also question the amount and volume of trains which Hume Coal will bring  
along this line, causing noise pollution, dust pollution and major traffic issues. The  
ambulance comes from Bowral, which will need to cross the Calwalla railway line in  
Sheepwash Road west of Robertson, and the Illawarra Highway, Robertson,  
Crossing, to gain access into the village of Robertson. But having – there are often  
accidents due to the fog and the mist on the Illawarra Highway east of Robertson,  
20 past the well-known Robertson Pie Shop, remembering that the ambulance, police,  
fire brigade, SES and other emergency vehicles will no doubt be held up on one of  
these crossing with the increase of train traffic.

25 And remembering those vehicles may need to return urgently with a patient to  
Bowral Hospital without delay for a life threatening reason, or to be transferred to  
Westmead, Liverpool and Nepean Hospitals as part of their care with South West  
Area Health. The doctor's surgery in Robertson is also the centre of the village.  
And the ambulance will need to, again, come along Sheepwash Road and cross the  
Calwalla train line. And then, while the doctor's surgery is in the centre of town, and  
they often call the ambulance for patients who are ill and in need of major survival  
30 tactics. We are told that four to five minutes could make a huge difference to a  
patient in cardiac arrest as to whether they live or die.

35 So awaiting trains at the crossing at Robertson at Calwalla and at the Illawarra  
Highway, Robertson, could mean a patient could die. Many people also own holiday  
homes or permanent caravans on the south coast, which will mean that they need to  
cross Calwalla lines at times of public holidays. Sheepwash Road traffic is bumper  
to bumper and pushed to the limits during peak periods, eg, Easter, June long  
weekends, October and Christmas and New Year. I think if you look at your  
Navman, all the traffic is directed from Bowral area along Sheepwash Road, and  
40 must cross the Calwalla Railway Crossing.

45 Robertson residents, what effects will the huge, lengthy delays have on day-to-day  
vehicles, having to stop at the Illawarra Highway Crossing, and then again, if  
heading to Bowral, at the Calwalla Crossing in Sheepwash Road? We have been  
advised that delays of more than 10 minutes at both crossings could occur. It's  
proven that all houses have an average of four car movements from their homes per  
day, so this must and will have an enormous effect and impact on traffic in and out of

Robertson daily. With 40 years of experience in the real estate industry, I would strongly suggest that the court today consider what devaluation a mine and its effect on many other issues will be created because of the amount of trains, noise pollution and time added to the travel?

5

From Robertson we will – we will have, together with many farms that have property crossings, and need to move stock from other sides of the railway line to other areas. Hume Coal needs to be made to do valuations on many of the properties in the area prior to any mine, and have consideration for a second valuation within the valuation of how much a mine will impact on the value of residential, industrial, commercial and rural property.

15 This is a major financial impact to many, especially those who have mortgages. I personally can say from my professional experience this may affect the values of properties between 40 and 60 per cent, depending on the number of factors, the noise, the dust, the increase of traffic. What about the mine subsidence? Who will pay for the devaluation, if it occurs, as it occurs?

20 In many areas of mining, it has done. The visual impact of being near the mines, “look, the view over the Hume Coal Mine.” What a site. From my many years of professional experience, the value of the property due to many issues are of major concern. The coal dust, the noise of the trains, the volume of trains; they all have an impact on property and devaluation in the area.

25 I have also personally attended many of the coal community forums, which is part of this whole process, and at all meetings Hume Coal cannot guarantee the quality of the water, the volume of the water and the level of contamination and or the level of chemical contamination. Around 4,000,000 drink this water, and without water, nothing can survive. So, if this water is to be chemically contaminated and polluted, what and how would the pollution of the South Highlands – sorry. What and how – 30 the pollution of the Southern Highlands survive? Nothing can survive without water. I am very concerned.

35 We in the Southern Highlands are the headwaters of the Sydney Water catchment, and what does Sydney Water intend to do with these major issues if there is contamination? Without water, again, nothing can survive. So many of the public, I wish to say, that if anyone should today contaminate the water or pollute the Sydney Water ..... supply of water which this corporation own, it will be legally seen as an act of terrorism, but it is too late when our waterways are forever damaged, and it’s 40 been allowed by a judicial system as Hume Coal have at many meetings have told us they cannot guarantee the contamination.

45 The general public – they cannot guarantee water pollution – Hume Coal have not told the general public they cannot guarantee the water pollution to the aquifers or the waterways. This is very scary that a legal system may risk many millions of people’s drinking water and more. Currently the waterways are all blocked to the general public by Sydney Water by gates and fences, so that no one can access them.

The water dams, namely Fitzroy Walls, Wingecarribee Swamp and Wingecarribee Dam and more do not have access to the public, but the waterways will have access – or the mines will have access to the waterways and the aquifers.

5 Remember that the Nepean River starts as – starts one of the head waters of the Sydney Water supply. It heads downstream as part of the Warragamba Dam and a series of aquifers – of many waterways from here to Warragamba, together with the streams, creeks, dams and lakes, make the whole of one of our major city’s only  
10 water sources for drinking and household usage, plus more within the whole of the Sydney region.

The Wingecarribee Swamp forms the manmade section of the Sydney Water Dam process, which again feeds through Wingecarribee River, flowing from Robertson, Kangaloon, Glen Quarry ..... Moss Vale and Berrima, so eventually meeting and  
15 again directed into Sydney Water supply and into the Warragamba Dam. Currently, if any individual enters or pollutes the waterways, there could be a fine or jail. It would be seen as an act of terrorism. But if this mine goes ahead and contamination and pollution are allowed to contaminate, it’s far too late to stop once the force has  
20 bolted.

How will this be dealt with when millions of people, animals flora and fauna have no water? How will this be fixed immediately? It can’t be. And what will be able to be rectified – sorry – and can’t be, and won’t be able to be rectified for humans and  
25 animals. They will die instantly or over days if the levels of contamination are too high. And what will low levels of contamination do over long periods of time? In a split second or minutes, millions of people from Robertson to the West of the Hume Highway at Berrima and heading north to Sydney could have no water instantly.

Our water is a precious commodity which we all pay for in some way in the 21<sup>st</sup>  
30 Century. How can Hume Coal and the law allow part of Australia’s pristine waterways to be gambled, and or guarantee the water for human consumption, let alone the damage it will do to the flora and fauna, and for how many years? This is what Hume Coal have confirmed that they cannot guarantee at the meetings I have  
35 attended.

On numerous occasions, Hume Coal have advised at the public meetings that they do not know if the waters, aquifers and creek, the rivers, the springs, the bores will be contaminated. So is this going to risk 4 to 5 million people, plus flora and fauna, in  
40 the – in our own country to see if this will be an act of terrorism? Please could you consider this seriously.

MR FREE: Thank you. Thank you. Can we have Christine Mallet, please. Okay. All right. I’m told Christine may have some car problems and is on her way. So if  
45 we could have Rod Blay, please.

MR R. BLAY: My name is Rod Blay. I live in Berrima, and thank you for this opportunity to speak. Although the proposed mine is by far the largest mine ever in

the – proposed in the Southern Highlands, by modern Australian standards Hume Coal’s proposed greenfields mine is a relatively small mine. The high establishment and operating costs are far higher than those of larger open-cut mines or even longwall underground mines.

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The yield of coking coal, which POSCO claims is its reason to pursue the mining of this lease, is extremely low. Using Hume Coal’s own figures and very basic arithmetic, the folly of this project is revealed. Only removing 35 per cent of the coal from the proposed mine and leaving 65 per cent in the ground is an attempt to prevent subsidence of the aquifer above. Of the material brought to the surface, 20 per cent is ash. This means only 80 per cent of the 35 per cent of the coal is saleable. Of this 80 per cent, 55 per cent is coking coal and 45 per cent is thermal coal. Running the numbers, 55 per cent of 80 per cent of 35 per cent equals 15.4 per cent. Only 15.4 per cent of the total mined area brought to the surface is coking coal.

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Hume Coal refuses to discuss its actual production costs and economic justification for proceeding with this project, preferring to hide the truth behind so-called commercial confidentiality. Hume Coal boasts of providing jobs, paying royalties and taxes, etcetera, but it does not discuss how it proposes to make money. These are the basic figures the government should be pursuing. Because of this cloud of mystery, the government should demand to understand how POSCO intends to make money because if the government knew this, it could see the writing on the wall. What is POSCO up to? Why is it proceeding with a lame duck?

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As I said in my opening sentence, this is a very small mine: 3.5 million tonnes per annum from a very inefficient underground mine costing 800 million to establish. The coal is to be shipped from Port Kembla, 1500 sea miles further from its Korean destination than Gladstone, Queensland, where coking coal from the Curragh Mine in the Bowen Valley is shipped. The Curragh Mine, an open-cut mine and one of the world’s largest metallurgical mines, produces 8.7 million tonne of metallurgical and 3.5 million tonne of thermal coal per annum. Wesfarmers recently sold this mine for \$700 million. With establish costs similar to the sale price of Curragh, how can POSCOs very complex untested underground mine producing a total of 3.3 metres – million tonnes ever compete with this open-cut mine producing 12 million tonnes per annum?

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Why is POSCO proceeding with this threat to the Southern Highlands community? Is it ignoring the four-year forecast for coking coal is falling from US\$180 per tonne to US\$150 per tonne, a fall of 16 per cent that will only up – speed up the inevitable? Korea has already imposed a ban on thermal coal with higher than .4 per cent sulphur content for power generation. Korea could expand this to all coal. Preliminary assessments show Hume’s coal to be .6 per cent sulphur. Is it hoping to get approval with conditions and then move the goalposts, extend the mine, acquire adjacent leases, decrease the width of the pillars or change to longwall or open-cut? Only POSCO knows.

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Or perhaps they have it all wrong, and after a few years they will bite the bullet and start buying cheaper coal from others, close the mine, place it in care and maintenance to avoid the costs of rehabilitation, perhaps waiting for a return to the golden days of high prices. What the government must avoid at all costs is POSCO  
5 having a stranded asset on its hands at the expense of one of the most valuable assets: the sustainable future of the Southern Highlands. The community is angry now, but what if this mine were to proceed and become a complete white elephant? I strongly urge the IPC to reject this mine.

10 MR FREE: Thank you. Thank you. The next speaker is Peter Martin.

MR P. MARTIN: Good afternoon. There's something to be said for being last or next-to-last. I – my name's Peter Martin. I'm president of Coal Free Southern  
15 Highlands Inc, which I'm sure you've all heard of. I was also the founder, with my wife, Kim, who you heard from yesterday, of the Southern Highlands Coal Action Group in 2010. I'm a qualified civil engineer with a Master of Business Administration. I'm now semi-retired with a farm on Golden Vale Road right in the middle of POSCO's proposed mining area. It won't surprise you to say – to hear that  
20 I strongly oppose POSCO's plans, but not just because they affect us. In my view and from my experience, this is a potentially environmentally destructive project fraught with execution risk and uncertainty. It's in a beautiful and historic part of the Sydney water catchment, and it should never be built.

Just if you'll indulge me, I'll give you some background. The first 15 years of my  
25 business career were spent in heavy marine construction. Starting in 1974, I was involved in building offshore oil and gas platforms and laying marine pipelines in extreme environments around the world, including the North Sea, the Gulf of Mexico, offshore Brazil, northwest of Australia and so on. For the past 30 years, I've been a senior executive and chief executive in the international finance industry,  
30 and I still have board roles in that area. From my past experience, projects which have multiple risks and uncertainties are very vulnerable to catastrophic failure.

In the offshore oil and gas industry and from my experience, projects are often  
35 exposed to major uncertainties such as inclement weather, very deep water, variable seabed conditions, uncertain geology, and also compounded by the need, in many cases, to new – to use new and potentially untested technology. Human nature is also a problem when driving to get the project done on time and on budget, and I'm sure you've all heard of Deepwater Horizon. Now, why is all this relevant? Well,  
40 the Hume Coal mine has all these elements but in a coal-mining setting.

You've heard how POSCO is planning to mine right under a huge body of water in  
45 the eight to – 80 to 100-metre-thick Hawkesbury Sandstone layer sitting right above the mine – the coal seam. The geology is uncertain and highly variable. The sandstone is fractured and has volcanic intrusions, creating serious obstacles to any mining operation. Hume is planning to use a combination of mining techniques that are untested, particularly in these circumstances. In a number of areas, critical



evidence supporting Hume's claims is not made available or is commercial-in-confidence.

5 In addition to all these problems, Hume can't access about 30 per cent of the area they plan to mine. And why is that? That's a result of a successful appeal in the Land and Environment Court in 2017 where my wife and I and a group of other landowners took Hume to court to stop exploration activities on our properties, and we were successful. The landowners, including ourselves, will not allow Hume onto our properties for any future mining-relating activities.

10 The Hume project has a number of other major additional constraints, and I'd contend that there has been an element of reverse engineering in Hume's groundwater modelling and mining plan to try and fit it within fundamental constraints. The first and most important is the mine faces serious water licensing constraints sitting in the PN1 district where the water is fully allocated. Hume has access to approximately two gigalitres of water, and that's about the most they will ever be able to access, unless they can buy more from other landowners, which they have attempted to do, without any success.

20 Hume also needs to show the surface damage or subsidence would be minimal due to the many properties that could be affected above the mine, not to mention some potentially serious mine safety issues, which I know you've been advised of. Hume needs to limit the number of groundwater bores that would be affected by the mining as much as possible. Hume also has to dispose of excess water and mine waste underground to avoid costly water processing and highly polluted waste water being discharged into local creeks and streams. Let's address groundwater modelling. In 2014 the Coal Action Group issued a water study that took more than 12 months to complete based on information from 300 water and previous coal bores that were sitting – the information of which was sitting on the governments DIGS database.

30 It was also enhanced by a lot of the work that John Lee had done in the area over the past 25 years, and you heard from John today. The study predicted a range of water flows into the mine of between six and 20 gigalitres a year. That's either three times to 10 times the volume that Hume now claims they will require for their mining licence, or for their water licence. The study also predicted that the – that hundreds of water bores would be affected over a very large area because of the unique geology. It also predicted that many bores over the mined out area would be drawn right down to the mine workings, as has actually happened out at Berrima Colliery.

40 Hume has made three attempts to table a groundwater model that disputes that early model in 2014. They've failed every time. The first model was presented in the EIS. The second model was – the revised model was presented in the RTS. And the third recently after the first two were found to be flawed in important respects. Hume's consultants have now selected parameters and assumptions about impervious layers above the mine workings that you've heard experts say aren't backed up by any evidence. In fact, the assumptions fly in the face of the known geology which is supported by previous exploration results and local experience.

90 per cent of the bores drilled in this area show no impervious layer, or a very small amount of material between the sandstone and the coal seam. Hume concedes that over 90 water bores owned by 70 landowners will be significant drawn down during the mining operation. Some impacts they say will last for 50 years or more.

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Our expert's model predicts much greater impacts on more bores in the district, but let's face it: even if we take Hume's admission as correct, that's absolutely confronting and, as the DPE said, it's unprecedented. We all know groundwater modelling is far from an exact science. If Hume is wrong even by a factor of 50 per cent, and the groundwater take is three or four gigalitres, not two, let alone the six or 10 or more gigalitres that our experts predict, the entire mine plan falls apart. How can one rely on the proponent's assessment in an area of such vital importance.

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Turning to make good, is make good actually possible? It's a find sounding concept, but it will be difficult if not impossible to execute in this context. Hume faces serious legal obstacles getting 70 or 100 landowners to sign up to make good arrangement before the project begins. The Hume proposed opt-in concept is an idea that doesn't have any basis in the law. The volume of water that would need to be supplied to landowners by Hume on a daily basis to properties all over the area for 50 years or more defies commonsense.

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Hume claims that they'll deepen bores if required, however, if some bores are drained down to the mined-out void, as our experts predict, what do they do then? At the Berrima Colliery this has happened and, in that case, bores were drilled below the mine floor, but the water flows were insignificant. How will the make good be undertaken and monitored long after POSCO has gone? Actually, interestingly enough, Hume management claimed to my wife and I in a meeting that they'd truck or pipe the water if the drilling didn't work. However, they couldn't explain where the water would come from or how they'd get permission to build pipelines across the district.

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So that leads to my conclusions, and I think these are the questions you, as decision-makers need to ask yourself about this project: why would you sign off on a project that is fraught with risk and uncertainty and has no demonstrable contingency planning in the case things go wrong? Why would you sign off on a project that Hume contends is supported by evidence which, in many instances, they won't make available for independent review? Why would you sign off on a project when a number of outside experts say that there are serious flaws, misrepresentations and errors in the analysis that haven't been addressed? And, finally, why would you sign off on a project which has potentially major consequences for the safety of the miners, the future of the community, and the environment if a major failure were to occur? Thank you.

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MR GATES: Thank you for that. I had a question on here about make good arrangements after the mining has ceased, and you touched on that, and would you like to – has Hume indicated to you what might happen after the mining ceases, in terms of make good arrangements?

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MR MARTIN: Well, they issued letters around the district, and we got one. We in fact got three. We got three different estimates of the draw down on our property. The first one was 40 or 50 metres, and I can't remember the timeframe, it was something like 60 or 70 years to fix it. Attached to that letter is a diagram showing a proposed drilling program, if you like, or, you know, a suggestion that, "We'll either drill your bore deeper or will drill an adjacent bore on your property and that will provide the water you need, you know, for your – to make up your usage."

Now, I've had three of those letters. Each of them changed the amount of drawdown, the time of drawdown, the data, but, in effect, they all said the same thing, "We'll drill it deeper." The question of piping and trucking didn't come up in any of those letters was actually mentioned in the EIS by the way and it was certainly talked about in the meeting we had with Hume. So our concern, I mean, it's very simple: on our property, we only have a 30 meg irrigation licence.

We have a truffière with two and a half thousand or 2400 oak trees. We've got to put about 25 mils of water on them every week. If you run the calculation, that means across – in summer – across the summer period of three months or so, we need to use about 20 megalitres of water, and I've been very careful in calculating that. I actually went out and bought one of the first groundwater licences in New South Wales back in 2005, on the basis we were going to develop the truffière. If, as is predicted by the experts on our property – I mean, John Lee has done all the work on our bore.

If our bore is drawn down to the mine workings, which are 150 metres below the ground in our place – our bore pumps from 80 metres. It'd take seven 30,000-litre trucks coming into our property every day over three or four months during summer to deliver us 20 megs. Now, that's tiny. I think John explained, you know, the bore up on the top of the hill near our place, they pump 400 megalitres a year with an irrigator, and there's plenty of bores around with 100 meg or 80 meg or 60 meg capacity. So you can imagine the physical problem of trying to manage a program bringing water into the district, particularly if this concept of drilling deeper bores on people's property fails.

MR GATES: Thank you.

PROF FELL: Any further questions?

MR SHARROCK: No. Thank you.

PROF FELL: Thank you very much.

MR FREE: Thank you. We have two remaining speakers. The next is Bernadette Lawler.

MS B. LAWLER: Hello, and thank you for letting me speak. My name is Bernadette Lawler. I'm from Sutton Forest. We have a commercial flower orchard

with an irrigation licence of 19 meg, and we pretty well use it all. We need to irrigate to be commercially viable, but I want to highlight a concern for the flora and fauna. I understand that there's – several speakers today have spoken about that, so sorry to be repetitive, but this is what I felt was not spoken about yesterday. In particular, I want to speak about the effect of the extensive drawdown, the effect that – it will happen due to the Hume coalmine – on the aquifer and the effect that this will have on the plants and animals that inhabit the western area of the Southern Highlands.

10 This project is placed in the middle of the Great Western Wildlife Corridor, an ecological corridor connecting the Blue Mountains to the Morton National Park and over to the eastern coastline. There's just a diagram up there linking and showing – it's a small – the red area is the mine, the Hume coalmine, indicating Berrima, Sutton Forest and down to kind of Exeter. It's a wide area. The wildlife corridor is critical for the connectivity and the conservation of many threatened species, including the koala, the regent honeyeater, the gang-gang cockatoo, the glossy black cockatoo and other threatened species and endangered species utilising the corridor so that they can move freely to find resources such as food, water and shelter.

20 This corridor contributes to the resilience of the landscape and the changing climate and helps to reduce future greenhouse gas emissions by storing carbon in native vegetation. Many endangered and threatened species migrate along this corridor. It's very important for some, such as the regent honeyeater, that rely on winter-flowering gum trees along their migratory routes. Sutton Forest, Paddys River, Wingello and High Range areas are already identified as the most narrow and highly fragmented due to the existing industry and development, and we need to focus on the conservation efforts most.

30 The New South Wales Government recently declared a national park on Tugalong Road, Canyonleigh for koala habitat, recognising the importance of the corridor to the koala conservation. Premier Gladys Berejiklian said that the three and a half thousand hectare park will ensure a vital koala wilderness area is preserved. Whilst this coal mine is below ground, and clearing vegetation is not the issue, the drawdown of water on the aquifer is the issue, and this is what I'd like to highlight some data about.

40 So this data, the graph on the right-hand side comes from a study done in Western Australia which has the equivalent eucalyptus forest to those that are impacted on the mining area. Large trees tap in and feed from the unsaturated upper zone. The tiny little – the tree that's above, there's the large area underneath the tree, which is the under – the unsaturated zone. Then there's the small narrow section, which is the saturated zone, which is the water table, essentially. By lowering the saturated soil zone, which is the water table, this has adverse consequences for forested areas, particularly if lowering this zone happens quickly and plants can't adapt. It is all about the speed of the lowering.

We heard much – we heard such a range of hydrogeological predictions on groundwater levels that we cannot be sure on how much or how fast the water levels will change. However, a drop of two metres over a five-year period sounds fair enough, and if not is conservative. On the right-hand side you'll see a star. This  
5 represents where this sits on the graph about the amount of pull down on the water within the timeframe. That puts it in the area of the severe consequence for the forest and the vegetation in the area.

10 Effects of this mine on the coal – sorry. The effects of this mine on groundwater are likely to be catastrophic on these forested areas of the corridor and the habitat that these animals rely on, and it will last for a century. If the aquafer, rivulets, dams and rivers dry quickly, this means increased destabilisation of the soil and erosion. There will be a large decrease in the vertebrate populations that rely on these ecosystems and severely reduce primary production in the area. This will damage all vegetation  
15 in the area, particularly in this part of the corridor, and have a massively negative impact on the function of the corridor. Much of the mine area is directly under the Belanglo State Forest, which is a vital part of the Great Western Wilderness Corridor. The effects of the drawdown on the aquafer will go way beyond the proximity of the mine.

20 With reduced access to natural waterways and drying of the unsaturated zone, the effects of the predicted drawdown, in combination with the pressure of climate change, would jeopardise all the effects of the many conservation groups of the Wingecarribee Shire, various environmental departments of the New South Wales  
25 Government that have thrown enormous amounts of money into protecting. As stated previously, Southern Highlands is valued for its unique ecological diversity. It must be protected. It is not just us humans who need the water. So do our trees, plants, animals, birds and insects in our state forests, on our private properties, and on the Crown land.

30 How do Hume Coal plan on making good to these plants and animals and provide water when they have been denied the basic right? We've all noticed how our trees have suffered over recent years in the drought. The effect of this drawdown is dated to last for at least 76 years. This corridor will not cope, and it will not survive. One  
35 of the things that make this area of the Southern Highlands beautiful and much loved are the extensive and diverse range of established and deciduous trees. These create the unique and wonderful artistry of the Southern Highlands. This is what pulls the tourism and the locals that want to live here. These trees all depend on a healthy layer of ground and soil, which is supported by this aquafer. So I strongly suggest  
40 that this is the wrong project in the wrong place. Thank you.

PROF FELL: Thank you.

45 MR FREE: Thank you. And has Christine Mallet arrived?

MS C. MALLET: I'm not sure – can you hear me okay?

MR GATES: A little louder.

MR FREE: A little louder would be good.

5 MS MALLET: Thank you. Let me just – thank you. Good afternoon. My name’s  
Christine Mallet. I’m a resident at Berrima, and I’m against the mine. We’ve heard  
many wonderful presentations over the last two days, all stakeholders who care  
enough about the mine to take time to put themselves through this ordeal of giving a  
presentation – I’m very grateful that you’ve given us this opportunity.

10 I wish to focus on the smaller picture of what it will mean to our family if the mine is  
given approval to go ahead at our home and garden and to Berrima Village. I’m a  
fifth or sixth-generation Australian, so I have a deep feeling for our country and how  
we care about it. I believe we have a duty of care to leave this world in a better  
15 condition than when we arrived. It isn’t our right to take what we want when we  
want and leave our children and grandchildren to deal with the mess.

We lived in Hong Kong for 20 years and finally left because, as China industrialised,  
Hong Kong became more polluted and crowded and it wasn’t a good place to live  
20 anymore, so we moved back to Australia and down to Berrima in 2011. We rented  
until we bought our current home, which sits beside the Wingecarribee River on two  
and a-half acres of land. Most of the garden is basically native bush with lots of gum  
trees, wattle trees, and bushes and grasses. But about a third is laid to lawn and has  
European trees like ornamental pears, maples, fruit trees, etcetera, and clipped  
25 hedges.

For the last two years, we have been suffering from what is called a green drought. It  
looks green, but if you put your finger into the ground just below the surface, the soil  
is completely dry. So after the last 18 months or so, a lot of our European trees have  
30 died and our vegetable crop is unreliable. The tomatoes look wonderful, but when  
you cut them in half, they are nearly hollow inside.

One of our greatest joys is the enormous range of wildlife that live in our garden.  
The animals include grey kangaroos, swamp wallabies, wombats, echidna, platypus  
35 in the river, water dragons, rabbits, foxes, bush and ringtail possums. The birdlife –  
we have brown ducks, black cockatoos, kookaburras, white cockatoos, curly-top  
pigeons, doves, magpies, kurrajongs, red emperor parrots, king parrots, to name just  
a few. We are privileged to share our lives, which we live practically under each  
other’s noses, as our main lawn is just outside the French window, so we have a  
40 ringside seat and we become used to living with each other. We often see baby  
kangaroos climbing into their mother’s pouches to have a feed. And one the little  
one is settled, the mother will continue to graze on the lawn.

Many of the animals not only feed in our garden, but they pass through it on their  
45 way to the river. In fact, I think kangaroos from all around the Berrima area travel  
across the undeveloped land and hop down through the ..... bush to the old cricket  
oval where Don Bradman played as a young man. From there, they have easy access

to the river. Our garden is really a sanctuary for many of these creatures, particularly because we have a bore and are able to keep our lawns and bushes alive. Without the bore, I don't know where they would go. The last summer has been particularly difficult, because we've had months with no rain at all, and temperatures that were  
5 up in the 40s for days on end. We clocked 33.6 degrees on one occasion, but may well have been higher. If you don't have water, the grass turns to straw.

Which brings me to Hume Coal and what is going to happen to our bore. We really rely on the bore to keep our plants alive. We are not on town water supply, so we  
10 have a tank water for drinking and household use. But if tank runs out, we really need the bores for backup. How will we survive if the bore runs dry? If the mine goes ahead and dust from the 800 metre-long, six level-high coal stack will blow right over our house and garden, it will fill all the roof gutters and overwhelm everything that we touch and use. If it does rain, the rainwater will wash dust into  
15 our tank water that we will drink. We drink. Will Hume Coal deliver water to us? I'm nearly finished.

We live south of the river, about two and a half kilometres from where most of the activity will take place. So we expect to be affected by the noise, dust, lights and  
20 possibly ground movement. It will ruin the wonderful world that we have enjoyed since moving to Berrima. It's not just our world. It's everyone who lives in it around Berrima. Our neighbours, the people who live in the village, the shopkeepers, the small – the school children, the 250,000 tourists who swarm here every day and – to simply – to enjoy our beautiful historic village and environment.  
25 It's a disaster.

Do you realise that Berrima is not like other villages? It doesn't have a supermarket or a pharmacy or a butcher's or a garage. It's largely a village that survives on  
30 tourism. It has lots of restaurants and cafes and a pub, motel – lots of places where people can stay. There's a little shop – there are little shops that sell all sorts of things that tourists can take home as a memory of their day trip to Berrima. There are art galleries, antiques, knitwear and people selling their handmade objects. At 5 o'clock, they all disappear and the shopkeepers go home to rest for the next day. The restaurants and cafes are closed on weeknights, except the pub.  
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So if you drive down the Old Hume Highway through the village after 5 pm, you may find the ducks happily walking across the highway on their way to the river. If the mine goes ahead, Berrima as we know it will die. After the tourists stop, what  
40 will happen to the shopkeepers? I don't think many of them will be equipped to offer the sorts of fast food and goods that the miners will want. Where will they go? Especially if the value of their properties plunges. What will any of us do? We have all had this worry on the back of our minds for years now. We generally don't talk about it. We just get on with trying to stop it from happening. Please don't allow this terrible disaster to happen. Please buy back the leases so we can feel secure in  
45 the knowledge that we won't have to keep on fighting this terrible endless battle. Enough is enough. Thank you.

PROF FELL: Thank you.

MR FREE: Thank you. Thank you, Ms Mallet. That brings us to the end of the scheduled speakers. Can I just take the opportunity to reiterate a couple of features  
5 of the process that the chairman described at the outset, particularly to emphasise that the Commission, as it has indicated, there will then be the process of the Commission finalising its report and providing it to the department, which will enable the department to produce its final environmental assessment report. Thank you.

10 PROF FELL: Thank you very much. Thank you very much. That brings our discussions to a conclusion. And I would just like to say you have left us with a great deal to think about and we're very grateful to you for joining us in this public discussion, and I would like to thank you very much for the constructive and respectful way we've been able to get this information over the last two days. Now,  
15 as you've heard, the process will continue. We will go back to think about what you have told us. And, again, thank you. I would like to just before we stop thank our – the people from the secretariat, Steve and Brad, and also Emily, who has been taking the proceedings down, and I hope later this week we will see the hard copy result of that. No, we don't take - - -

20 MR .....: Mr Chairman, I just wondered, on behalf of everybody here, to thank you all for taking on the task and for coming down and spending two days with us  
- - -

25 PROF FELL: On behalf of my colleagues, thanks for that comment.

MR FREE: Thank you.

30 PROF FELL: Safe travels.

**RECORDING CONCLUDED**

**[3.27 pm]**