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TRANSCRIPT OF PROCEEDINGS

TRANSCRIPT IN CONFIDENCE

O/N H-1039636

INDEPENDENT PLANNING COMMISSION

RE: ULAN COAL MINE MOD 4

PANEL:

**GORDON KIRKBY
PROF CHRIS FELL
PROF BRETT WHELAN**

ASSISTING PANEL:

**JORGE VAN DEN BRANDE
DAVID KOPPERS**

REGISTERED SPEAKERS:

**CHARLIE ALLAN
SARAH FERGUSON
TONY LONERGAN
JAN DAVIS
ROBBIN BINKS
JULIA IMRIE
COLIN IMRIE
BRUCE HUGHES
BEV SMILES
MELISSA GRAY
EDWARD P. FINNIE
DEREK FINTER
CORAL PECKHAM
PHYLLIS SETCHELL
GEOFFREY MIELL
ALISON SMILES-SCHMIDT**

LOCATION:

**THE PARKLANDS RESORT &
CONFERENCE CENTRE, 121 ULAN ROAD,
PUTTA BUCCA**

DATE:

9.02 AM, WEDNESDAY, 19 JUNE 2019

MR G. KIRKBY: Good morning. Before we begin, I would like to acknowledge the traditional owners on the land on which we meet. I would also pay my respects to their elders past and present and the elders from other communities who may be here today. Welcome to this meeting on development application 080184 MOD 4 in
5 relation to the Ulan Coal Mine Project from Glencore Proprietary Limited, the
proponent, who seeks changes to the layout of the long-wall panels in both the Ulan
number 3 and the Ulan West mining domains and refinement to the associated
surface infrastructure, to recover an additional 6.4 million tonnes of coal. I'm
Gordon Kirkby and I am the chair of this Independent Planning Commission panel,
10 which has been appointed to determine the proposal.

Joining me are my fellow commissioners, Professor Brett Whelan and Professor
Chris Fell AM and Jorge Van Den Brande and David Koppers from the Commission
Secretariat. Before I continue, I should like to state that all appointed commissioners
15 must make an annual declaration of interest identifying potential conflicts with their
appointed role. For the record, we are unaware of any conflicts in relation to the
determination of this proposed modification. You can find additional information on
the way we manage potential conflicts in our policy paper, which is available on the
IPCN website. In the interests of openness and transparency, today's meeting is
20 being recorded and a full transcript will be produced and also made available on the
commission's website. This public meeting gives us the opportunity to hear your
views on the assessment report prepared by the Department of Planning and
Environment, before we determine the development application.

25 The Independent Planning Commission of New South Wales was established by the
New South Wales government on 1 March 2018 as an independent statutory body
operating separately to the Department of Planning and Environment. The
commission plays an important role in strengthening transparency and independence
in the decision-making process for major developments and land-use planning in
30 New South Wales. This meeting is part of our decision process. We've also been
briefed by the department, met with the proponent and we will carry out a site
inspection later today at the conclusion of the meeting. After today's meeting, we
may convene with relevant stakeholders, if clarification or additional information is
required on any matters raised. Transcripts of all meetings will be published on the
35 commission's website. Following today's meeting, we will endeavour to determine
the modification application as soon as possible. However, there may be delays if
we find the need for more additional information.

The ground rules for today: before we hear from our first registered speaker, I would
40 just like to lay out how we expect today's meeting to function. Firstly, today's
meeting is not a debate. Our panel will not take questions from the floor and no
interjections are allowed. Our aim is to provide the maximum opportunity for people
to speak and be heard by the panel. Public speaking is an ordeal for some people.
Though you may not agree with everything you hear today, each speaker has the
45 right to be treated with respect and heard in silence. Today's focus is public
consultation. Our panel is here to listen, not to comment. We may ask questions for

clarification, but this is usually unnecessary. It would be most beneficial if your presentation is focused on the issues of concern to you.

5 It's important that everyone registered to speak receives a fair share of time. We will
enforce timekeeping rules of your allocated times upon registrations. As chair, I
reserve the right to allow additional time for provision of further technical matters.
A warning bell will sound one minute before a speaker's allotted time is up and again
when the time runs out. Please respect these time limits. Though we will strive to
10 stick to our schedule today, speakers sometimes don't show up or decide not to
speak. If you know of someone who will not be attending, please advise either Jorge
or David. If you would like to project something onto the screen, please give it to
Jorge or David before your presentation. And if you have a copy of your
presentation, it would be appreciated if you would provide a copy to the secretariat
after you speak. Please note that any information you do give us may be made
15 public. The commission's privacy statement governs our approach to your
information. If you would like a copy of our privacy statement, you can obtain one
from the secretariat or from our website.

20 Audio recording of this meeting is not allowed, except for official recording for
transcription purposes. Notes may be made through the day on issues raised and they
will be summarised in our determination report. Finally, I would like to ask just at
this point that everyone turns their mobile phones to silent or off. And just for those
speakers, we don't have a microphone stand, so this microphone will just be sitting
on the table in front, if you could do that. The microphone attached to the lectern is
25 for the transcription, so it doesn't actually amplify anything, so this microphone will
just be sitting there. The other thing I would just like to advise is there has been a
couple of last-minute changes to the speaking schedule. So what you have in front of
you, there's slight changes. There's a speaker that has pulled out, a couple of
changes, so just sort of – just wanted to make you aware of that before we
30 commence. So we will start with our first speaker, Charlie Allan from Ulan Coal
Mines.

MR C. ALLAN: Good morning, Commissioners, Jorge, David. About Ulan Coal,
Glenore's Ulan complex comprises Ulan Underground, Ulan West and Ulan Surface
35 Operations, and is located 45 kilometres north of Mudgee and 25 kilometres north-
east of Gulgong. Our Ulan operation employs over 700 people directly and a
thousand indirectly. Mining has been undertaken in the Ulan area since the early
1920s. Ulan Underground and Ulan Surface Operations have operated since the
1980s and Ulan West since 2012. Ulan produce and export quality thermal
40 production, which is railed to the Port of Newcastle. Our current project approval
term ends in 2023. We are seeking a modification, MOD 4 to our current project
approval. MOD 4 would provide access to an additional 6.4 million tonnes of coal,
which would be shared between our Ulan Underground and Ulan West operations.

45 An approved MOD 4 would not change maximum workforce numbers, limits on
extraction, coal handling and preparation, train movements, water management
practices, impacts to state or federally listed threatened communities, progressive

rehabilitation of disturbed areas or the project approval term. The proposed MOD 4 area lies wholly within our existing approval and mining lease boundary. MOD 4 includes an extension of Ulan Underground's longwalls 30 to 33 and longwalls west 7 and west 8 and the widening of longwall 33. It includes the extension of Ulan West's longwalls 7 and 8 and the installation of supporting infrastructure. There are no new longwalls proposed in this modification. We seek MOD 4 as a result of geological information gathered during the ongoing exploration process that has indicated additional minable resource.

Our modelling shows that extended panels can be adequately ventilated. And because a coal barrier, which is shown between Ulan Underground's longwall 28 and 29 is no longer required and has been removed. And as a result of that, longwall 33 can be widened. As part of our environmental assessment, ministerial consent to apply for the modification was granted by National Parks and Wildlife Service. And MOD 4 will allow us to reduce the number of dewatering facilities at Ulan Underground from five to three. And it's also worth noting that the Department of Environment and Energy confirmed that MOD 4 is not a controlled action under the Environment Protection and Biodiversity Conservation Act.

In our response to submissions, additional design work and a commitment to bury pipes and power lines in the Durridgere State Conservation Area has reduced disturbance by 2.2 hectares. The Office of Environment and Heritage requested Ulan agree to a voluntary biodiversity offset for the difference in disturbance for MOD 4 of 1.42 hectares, with which we agreed. And additional heritage subsidence and shallow aquifer assessments were completed at the request of a private property owner. We hold sufficient water licences for the entire life of mine to 2033, which includes the proposed MOD 4. They were acquired in late 2018. And an occupational licence is required to install, operate and maintain infrastructure within Durridgere State Conservation Area. The occupational licence is being prepared in consultation with National Parks and Wildlife Service.

The groundwater model was subject to independent peer review. The groundwater drawdown from the proposal would not affect any additional private boards. The two plans I draw your attention to there – although difficult to see the difference – the current drawdown area is shown and the proposed drawdown area, with little difference and no additional bore holes affected. The groundwater assessment considered cumulative impacts of the Ulan and Moolarben mine planes. And additional base-flow losses have been modelled as less than two megalitres per year. Finally, more than Ulan's economic contributions to the mid-west region local government area in 2018, we have more than 500 full-time employees who live locally, who are paid approximately \$80 million in wages and salaries. We deal with just under 300 local suppliers, whose goods and services were purchased, totalling \$71 million in the year 2018. I'm running ahead of time. That's all I have. Any questions?

MR KIRKBY: No. It's fine.

MR ALLAN: Thank you.

MR KIRKBY: Thanks, Charlie. We've just got a slight revision to the order. We've had a request just to bump somebody up. So our next speaker will be Sara Fergusson. Thanks.

DR S. FERGUSSON: Testing. Testing. I would like to acknowledge the Wiradjuri People, who are the traditional custodians of the land. And I would like to pay my respects to the elders past and present and future of the Wiradjuri Nation. My name is Dr Sara Fergusson. I am a landholder and a farmer with Blue Springs Road to the east and the Talbragar River to the south. I'm also a medical practitioner of 25 years. The views that I express today are entirely my own as a landholder and farmer, and should in no way be taken as the view of Coal Services Health or subsidiaries. Farmers are resilient. The risk of drought, flood and fire is real. We have experienced drought. We have experienced severe floods, floods that took away kilometres of fences, uprooted trees and washed downriver valuable soils, floods that meant we had to swim across a rushing creek to feed our animals and to check our stock.

Our farm was one of many burnt to the ground from west to east by the destructive Sir Ivan Fire. This burned 95 per cent of our grazing land and pasture, burnt our conservation areas and took all plant equipment and stock which was in its path. We fought to save our home. These are challenges that we can overcome. We can plan and prepare for droughts, such as now. We can plan and prepare for floods. And we can plan and prepare for the possibility of future fire. We cannot plan not prepare for this proposed MOD 4. We are resilient, but we are not fools. MOD 3 is failing landholders and farmers. MOD 3 has ever-increasing problems and problems which have and are destroying land and relationships, destroying individuals, families and small communities.

With MOD 4, the mines say that they don't really know what will happen to our groundwater. They don't really know if some landholders will have subsidence such that that with MOD 3, where homes are cracking and earth is opening. We are resilient and it is this resilience that demands respect, support, professionalism and trust. Farmers treasure water; the mine does not. The mine wants the coal and the coal in this area is surrounded by water, vast amounts of water, so much water that the mine does not know how much it has removed. It is how to get rid of the water and how to get the coal out that the mine is solely interested in. Blue Springs Road was named for its history of springs. These springs are being lost. We see it. The mine already trucks water to some farmers.

The Talbragar River does not want the water from the mine. Farmers like us do not want the problems of the Goulburn River. Stop. We are not ready for MOD 4. Be honest, Ulan Mine, you're not ready, not ready to predict the problems. There has been no pre-expansion assessment. Accountability requires an assessment as a baseline pre any expansion. We have had no assessment. We are ready – you are ready to produce coal and you have various and varying plans for water removal, but

let's be honest, this MOD 4 was rushed through to try and avoid the challenges that would come with a changing regulation. Mines do not want the water underground, but the farmers do. This takes proper planning and preparation. And, Ulan Mine, you have not done this. The third and final point that I wish to make to our
5 commissioners is that the mine has failed to communicate. The mine has failed to communicate with landholders and farmers.

We front Blue Springs Road. We adjoin the Talbragar River, yet we have received no communication as landholders and farmers who are directly affected by MOD 4.
10 Our immediate neighbours and farmers up and downstream were not aware of this proposal. Commissioners, MOD 4 must not go ahead. MOD 3 is rife with problems and these must be addressed first. Communication is a basic requirement if landholders and farmers and the mines are all to continue to coexist in this area. In summary, we are resilient, but we're not fools. The mine wants the water out, while
15 farmers and landholders want the water in. Fail to prepare, prepare to fail. Communication is essential. The mine has not communicated with us. Commissioners, this MOD 4 application must be refused. Please don't be fooled by the mine. MOD 3 is only just beginning to show its flaws. Divide and conquer must be replaced by communication and consultation. Thank you.

20 MR KIRKBY: Thanks, Sara. The next speaker is Tony Lonergan from the Hunter Environment Lobby. Thanks, Tony.

MR LONERGAN: The Hunter Environment Lobby is a regional community-based
25 environmental organisation that has been active for over 25 years on the issues of environmental degradation, species and habitat loss and climate change. We cannot support the ongoing incremental creep of the coalmining expansion in the western coalfields area of the Hunter region. The regional cumulative environmental impacts of these very large extractive operations are unsustainable and are not adequately
30 assessed or recognised as an expensive legacy for future generations.

Our particular concern is the cumulative impact of coalmining on the water sources of the Goulburn River, the major westerly rising tributary of the Hunter river system. We note that this is the third coalmine expansion in the Goulburn River catchment
35 under consideration by the IPC. We commend the Commission for appointing the same chair across the three panels and strongly urge that the cumulative impacts of the Bylong mine proposal, the Moolarben modification 3 and 14 and this proposed further expansion of coalmining at Ulan Mine are considered in regard to increased cumulative impacts on the Goulburn river system.

40 The community has been calling on the Department of Planning to commission an independent investigation into the impacts of coalmining on the Upper Goulburn river water-source for at least 20 years. All that has happened over that time has been ongoing expansion of coalmining in the catchment on a mine-by-mine,
45 modification-by-modification basis, with no concerted effort to rigorously assess cumulative impacts. We're relying on you, Commissioners, and particularly the

panel chair, to consider the implications of all three mine expansion proposals on the integrity and resilience of the Goulburn River.

5 The key concern we have raised across all three proposals is the cumulative loss of base flows and the cumulative salt load reporting to the Hunter River and its likely impact on the Hunter Salinity Trading Scheme. We note that the Independent Expert Science Committee has also expressed concern over the potential for increased salinity and heavy metals concentration as a result of multiple mines discharging into the Goulburn River and eventually reaching the Hunter River.

10 One of the problems with the management of these water discharges through the EPA licensing process is that the western coalfield mines are managed by from the Bathurst office, while the Hunter Salinity Trading Scheme is managed through the Newcastle office. There appears to be very little consultation or information-sharing across the two regions. The Bathurst office is making decisions about environmental pollution licences and salinity levels in mine-water discharge and providing advice on the mine expansion in the region. There appears to be little consideration of the overall impacts downstream.

20 The Hunter River Salinity Assessment Report commissioned by the EPA in 2013 identified the need for a strategic real-time monitoring of flow and salinity in the Upper Goulburn River catchment. This has still not occurred. We pointed this out to the Commission in our response to the proposed Moolarben mine modifications. We request that the Commission investigate the process within the EPA for responding to this ongoing mine expansion or proposal for the Upper Goulburn River catchment. Our previous submissions have highlighted the issue of cumulative increase in salinity in the river.

30 The Trading Scheme salinity goal downstream of the Goulburn River/Hunter River confluence is 900 EC. Ulan Mine currently has an EPL that allows this level of salinity to be discharged into the top of the river. At the Glennies Creek reference point downstream from the Goulburn River confluence, salinities have exceeded 1200 EC on a number of occasions since 2007 and regularly exceeded 900 EC since that time. Measurement of salinity within the Goulburn River at the midstream Coggan gauge has demonstrated an increase in flow heights, with salinity levels above 900 EC. This level of salinity has been recorded at flow heights of 107 megalitres a day, whereas pre-mine this level is recorded at very low flows, of 63 megalitres a day.

40 An increase in the volume of low flows with salinity levels over 900 EC makes Hunter River catchment objectives to hold river salinity under 900 EC increasingly difficult to achieve. The current approvals across the three existing operations are – Ulan Mine EPL permits discharge of up to 30 megalitres a day at a maximum salinity of 900 EC. That’s 16 tonnes of salt a day. Moolarben permits discharge of up to 10 megalitres a day, maximum salinity 900 EC. That six tonnes of salt a day. 45 Wilpinjong permits a discharge of 16 megalitres a day at a maximum of 500 EC. That’s six tonnes a day.

The cumulative impact of these approvals is a current maximum of 29 tonnes of salt per day into the top of the Goulburn River or 10,586 tonnes of salt per year. This does not include the indirect passive seepage of saline groundwater from disturbed mined areas – that is unmeasured – or disposed-of brine from the desalination plants into disused pits and used as dust suppression. An example of this problem is the complexity of the management of leakage to the river from the east pit void at the Ulan Mine, where brine is dumped. Moolarben identified this leakage as a source of increased model flows into the Underground 4 workings.

We note that the recommendation from Moolarben modification before you is to lower the maximum salinity level to 685 EC, while increasing the daily discharge by 100 per cent to 20 megalitres a day. The Hunter Environment Lobby continues to recommend that the maximum level of 500 EC across all three fields – EPLs – is a more precautionary approach of the management of increased salt load in the Goulburn River. The river is not included in the Hunter River Salt Trading Scheme and by a 500 EC limit would provide a consistent management across the three operating mine sites. The other key issue is the cumulative loss of base flow with the river system from the current approval operations, in addition to the mine expansions under consideration.

The peak loss of base flow is from the Bylong River, a major tributary of the Goulburn River, is predicted to be 994 megalitres per year from the proposed Bylong Mine. The cumulative loss of base flows through the interception of groundwater sources and surface flows on existing operating mine sites is significant. It has not been clearly identified in the assessment document for Ulan Mine MOD 4. This information is not readily available and requires a considerable level of research across many environmental assessments and annual reports, to understand the impacts of the current mining operations on the river system and whether these actually meet the predictions underlying the approvals. An independent regional water study would be useful to compile all this information in one place.

An outstanding example of this issue is the recalibration of the Moolarben groundwater model that is now predicted to add an additional 1000 megalitres per year inflow into underground 4. This additional water make has not been assessed in relation to additional loss of base flows to the river. The significant deficiency within the current New South Wales planning and approvals process is the consideration of each proposal as a standalone project – standalone impact. Sorry. The emphasis by the Department of Planning and Ulan’s response to submissions is that Ulan MOD 4 is predicted to have a minor additional impact on these base flows. Planning refers to a one to three per cent increase, while modelling predicts an additional 0.001 megalitre per day on top of the approved MOD 3.

The predicted base flow reductions from 2010 to the end of mining was 13.14 megalitres per year for MOD 3 and 13.51 megalitres per year from MOD 4. However, nowhere in any of the assessment documents is there provided a total of approved loss of base flows to the Goulburn River. The groundwater response in appendix C states that the cumulative impacts on the regional groundwater systems

has been assessed and drawn down that is presented for the modelling does include the drawdown from the neighbouring Moolarben Mine. Wilpinjong is not included, as it is considered to be largely outside the model domain at a sufficient distance that no cumulative impacts would occur within the groundwater regime.

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We have two concerns with this statement: first is the additional drawdown from the recalibrated Moolarben model. Has this now been included in the regional groundwater model used by Ulan. The second point is that the Wilpinjong Mine is directly adjacent to the Moolarben Mine and has drawdown impacts on tributaries of the Goulburn River. Moolarben Mine also has drawdown impacts on these tributaries. We understand that there is a requirement to consider cumulative impact in the determination of the new models. We look forward to a detailed report on how the commission has considered the cumulative impact of the existing mining operations on the long-term health and resilience of the Goulburn River over time, as part of the determination process for the projects currently before you.

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One of the proposals put forward by the community to help mitigate these impacts is to regulate mine water discharge, so that it responds to catchment triggers and antecedent conditions. The return of a more natural flow regime through regulation of discharge flows would help improve the condition of the river. The replacement of base flows is very important. As we have noted before, the Hunter subregion bioregional assessment report found in key finding 6 that model changes in ecologically important flows indicate a higher risk in the condition of river-end forested wetlands along the Goulburn River compared to other river-end forested wetlands in the subregion. We do not support this ongoing incremental loss of base flows and increased reliance on the river system on mine water discharge.

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The other important issue we wish to raise is the impacts of Ulan MOD 4 on biodiversity and the Durridgere State Conservation Area, firstly in regard to water impacts. Curra Creek that flows through – the SCA has maintained a low flow through periods of dry times, at times when the Goulburn River has ceased to flow due to the sudden loss of mine discharge. MOD 4 is predicted to impact on flows in this creek system. The subsidence impact assessment predicts that Curra Creek may experience a reduction in retention times after periods of rainfall. The implication of this flow loss during dry times have not been assessed. We are concerned for the threatened species vulnerable to subsidence, loss of habitat and loss of base flows that have been listed in the response to submissions report as being likely or known in the area of impact. These include the region honeyeater, the barking owl, the large-eared pied bat, eastern bent-wing bat, squirrel glider, brush-tailed rock wallaby, koala, grey-headed flying fox and eastern cave bat.

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The ongoing threats to native plants in this area of the Hunter catchment is of great concern. The complex system of calculating offsets is increasingly problematic. And there is a reluctance to provide the necessary checks and balances to ensure the survival of the increasing number of species threatened with extinction. We note there is an outstanding issue with species credits required for the loss of habitat of the koala, squirrel glider and honeyeater. There is yet to be an assessment of the

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required species credits. We consider it essential for this assessment to be conducted in a transparent manner prior to the decision being made on Ulan MOD 4 proposal. Post-approval assessments are not acceptable.

5 There is also confusion through the report in regards to the required ecosystem credits. The planning assessment report refers to 61 ecosystem credits. The response to submissions appendix D ecology report refers to a biodiversity offset strategy that requires 155 ecosystem credits, equivalent to 17 hectares of land, while appendix A
10 of the ecology report states that 63 ecosystem credits are required, equivalent to 17 hectares of land to be secured into a biodiversity offset under a suitable conservation mechanism. The number of ecosystem credits assessed for retirement needs to clarified, due to these major discrepancies in reporting. We note that the National Parks and Wildlife Service have a preferred land-based offset for the MOD 4 proposal and support that this agreement needs to be finalised.

15 The response to submissions mentions that an agreement on the approved diversity offset arrangements is still underway. It is of concern that the conservation agreements of the existing five offset areas required by the approval of the Ulan West extension in 2010 are still being finalised. It is imperative that existing
20 biodiversity offset arrangements are secured before further loss of habitat can occur at the Ulan Mine. We're also concerned that the impacts of large vehicle movements, construction of access roads and ventilation shafts and ongoing noise impacts from the three ventilation fans within the CSA has not been assessed in regard to threatened species habitat and the amendment of the CSA.

25 We are particularly concerned about threatened and vulnerable species in this area, as the EPA has released a damning report that critically endangered species could jump by 30 per cent in three years and at the same time land clearing is up by 24 per cent. Finally, we note that climate change risks are growing exponentially with each
30 approval granted to yet another extension and modification of another coal mine in the Hunter region. It is a major failure of the New South Wales planning system that decision-makers don't quantify or evaluate the cumulative economic risks of increased greenhouse emissions. The Ulan MOD 4 proposal, if approved, will be responsible for a further 16,093,298 tonnes of CO₂ equivalent being released into the
35 atmosphere.

It is not only environmental organisations like the Hunter Environment Lobby that call for a different approach to business as usual. Some luminaries as the Reserve Bank Deputy Governor Guy Debelle, the banking regulator APRA and also ASIC
40 call for a lessening of the risk facing listed companies by climate change effects. We hope this is the very last time we have to attend a public meeting in Mudgee to address the poor assessment and approval processes in relation to carbon releases. At a time when the global community is struggling to combat climate change impacts, it is highly irresponsible to be approving coal mine expansions. In
45 summary, the Hunter Environment Lobby objects to the extraction of a further 6.4 million tonnes of coal on the headwaters of the Goulburn River. We consider that

the cumulative impacts are not minimal and have not been assessed across all existing proposed mining operations in the catchment.

5 The ongoing reliance of the Goulburn River on mine water discharge to replace lost
base flows needs to be managed under regulations to provide environmental flows
that improve river health and resilience. The limits on salinity levels in mine
discharge water from both Moolarben and Ulan Mines must be lowered to 500 EC to
lessen the cumulative salt load on the river system. No decision on Ulan MOD 4 can
10 be made until such time as current biodiversity offset areas are protected under
conservation agreements. Also no decision until such time as the required species
credits are assessed and a suitable land base biodiversity offset has been agreed upon
to mitigate the Ulan MOD 4 biodiversity impacts. We look forward to the
commissioner's report on how the important issues we have raised today have been
15 considered in the final determination of this proposal.

MR KIRKBY: Thank you, Tony. Our next speaker is Robbin Binks from the
Mudgee District Environment Group.

MS R. BINKS: Do I hold this?

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MR KIRKBY: It's the handheld one on the table in front of you. Yes. There you
go. You just need to press the button. That's it.

MS BINKS: Good morning, Commissioners. Thank you for this opportunity. My
25 name is Robbin Binks. I'm a member of the Mudgee District Environment Group.
And I'm presenting this paper on its behalf. The Environment Group is often
referred to by the acronym MDEG. MDEG objects to this modification proposed by
Ulan Coal. I will begin with some general comments concerning risk and then
present 3 significant matters of concern to our members. I will also list other matters
30 of concern which we urge you to consider.

The risks: (1) the main justification put forward for this modification is the
extraction of an additional 6.4 million tonnes of coal, which will return \$39.5 million
to the New South Wales Government. Is \$39.5 million enough to overcome the
35 potential negative impacts of this additional extraction: MDEG thinks not. We
believe the risks to surface water, groundwater, Aboriginal sites, cultural heritage,
biodiversity and increased greenhouse gas emissions far outweigh the minimal
expected benefits. One locality at great risk is the drip. The drip and corner gorge
and associated sandstone escarpments on the Goulburn River are listed on the New
40 South Wales National Trust Register. I quote from this register:

*This area has significant scientific, cultural, spiritual, historic, educational,
tourism and recreational values. These values are priceless.*

45 The locality is irreplaceable. It is clearly of importance across all aspects of human
life and should be maintained and protected for all generations to come. It's just not
worth risking the damaging of this area for short-term minor monetary gain. These

risks cannot be simply dismissed. The nature of this risk is presented at various points within this paper. (2) The Department of Planning has assessed the modification against the objects of the EP&A Act, which it's required to do. The department claims that the modification passes object 1.3(b), which is to facilitate
5 ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment. It has been assessed and given that there are only minor incremental impacts, the proposed modification can be carried out consistent with the principles of ESD. The department also claims that the modification passes object
10 1.3(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats and object 1.3(f), to promote the sustainable management of built and cultural heritage, including Aboriginal cultural heritage. It states that the proposed modification does not involve any material changes to environment and heritage matters.

15 MDEG does not accept these assessments. The main principles of ESD – the precautionary principle and conservation of biological diversity and ecological integrity – have not been applied. For example, minor incremental impacts result in large cumulative impacts. This cumulative impact is what must be assessed. The
20 impacts from this proposal must be considered in the context of impacts from all other current and proposed projects within the local mining complex.

These impacts must be cross-referenced and assessed together. The risk is much greater than the words “minor incremental impacts” suggest. For example, Ulan
25 Coal modification 4 will extend the length of time that the regional groundwater system is drawn down above Underground 3. It's obvious that impacts extend further than the pocket of groundwater above the proposed modification. The longer the time the regional groundwater system is depressurised, lowered, the greater the chance that the depressurised zone will intercept and distort the direction of the
30 groundwater flow away from the river and the Drip.

The Moolarben Mine modification 14 expansion has been found to intercept more groundwater than predicted in the approval of stage 1. An increase of 1,000,000,000 litres of water per year into Underground Mine 4 is a substantial increase in
35 groundwater drawdown and has not been assessed. The additional impact on regional groundwater sources and base-flows to the Goulburn River could have a significant impact. There is no indication that this has been included in the assessment of the Ulan modification.

40 Also, to state that the proposed Ulan modification does not involve any material changes to environment and heritage matters is incorrect. Ulan Coal and the department clearly state that increased groundwater drawdown will occur and more land subsidence will occur. Environment and heritage matters will most definitely be at risk, with potential for major negative impacts.

45 Significant matters of concern. The first is monitoring and assessing the impact on the Drip. Ulan Coal repeatedly claimed there have been no observed impacts on the

Drip to date. This claim from Ulan Coal has been repeated by the Department of Planning. The claim cannot be proven either way, as there was no baseline pre-mine study. Anecdotal evidence suggests that the discharge rate at the Drip has reduced. There is only one monitoring point between the mine and the Drip. It was installed
5 in 2016, 1.3 kilometres north of the Drip. There is some confusion about measurements at this point, as it is referred to as PZ36 and also PZ29.

Changes to ground level have been provided as large-scale graphs. Actual numerical data is not readily available. There has been no hydrochemical analysis of the
10 groundwater at this monitoring bore. Triassic water levels appear to have declined by around 1.2 metres since installation. Any decline in groundwater levels prior to installation is unknown. The lack of pre-mining groundwater data in this area, as well as between the river and longwall panels, makes ascertaining impacts
15 problematic. The data cannot be used to substantiate the claim “no observed impacts”. The second significant matter is determining the water-source for the Drip. The Response to Submissions Appendix C: Groundwater states on page 9:

The available evidence indicates the Drip has a water source that is separate to the greater Triassic unit.

20 The geological cross-section north/south through the Drip (RTS figure 3.4) that is used to show the potential for the regional groundwater table to be hydraulically disconnected from the Drip relies on a number of assumptions and errors. It does not establish that the Drip is fed by only a perched rainfall-driven aquifer. Both the Drip
25 and regional groundwater system are seen to respond to rainfall recharge. The Drip is most likely a combination of both local aquifers and permanent regional groundwater sources. These matters indicate it is highly unlikely that Ulan Coal can meet its current condition of schedule 3, clause 33, that requires that the proponent must ensure that the project has no impact on the water supply to the Drip. This
30 can't be substantiated based on the available information. Similarly, it is not conclusive that there has been no impact in the past.

The above, and the Ulan Coal argument that the Drip water character is dissimilar to the regional groundwater system, is discussed in more detail in the next presentation.
35 What we do know is the Drip is fed by a permanent groundwater source-spring that has continued to seep water through all the major droughts. This is supported by both anecdotal observations, historical photos and the presence of a groundwater-dependent plant species, *Cladium procerum*, a member of the sedge family. This is a significant range extension that normally grows in the swamps around Nelson's Bay.

40 The third matter of concern is salinity and maintaining low flows during extended dry periods. MDEG calls for an EC limit of 500 for all discharge water and regulated environmental flows that reflect pre-mining salinity levels and the natural regime. This is necessary to maintain the health and resilience of the Goulburn River
45 and National Park into the future, considering the pressures of climate change.

Streamflow data from the gauge at Ulan Village above the mine shows that the Goulburn River maintained surface flows throughout the drought in the early 1980s. However, now the river stops flowing whenever the mine ceases discharging during extended dry periods. This happened most recently from December 2017 to March
5 2018. The discharge of low-salinity groundwater intercepted by mining to support environmental low flows in the Goulburn River must be given the highest priority for water use and be written into the approval conditions.

The fourth matter of concern is vegetation and the groundwater-dependent
10 ecosystem. The New South Wales National Trust Register states that the fragile ecosystem of The Drip is at considerable risk from commercial activity. The trust goes on to say the Triassic aquifer is highly critical to The Drip and the Goulburn River because it is an important stratigraphic unit which governs recharge and piezometric services throughout the region, and is especially important insofar as it
15 hosts The Drip and significant reaches of the Goulburn River.

Depressurisation of the aquifer system has the potential to impact The Drip and Corner Gorge. Page 3. A series of small vegetative pockets located within the cliff
20 line of The Drip comprise coastal wetland species and moisture-affiliated ferns and weeping grasses such as *Cladium procerum* and coral fern respectively. Much of the vegetation in the cliff face of The Drip is considered a groundwater-dependent ecosystem, which is of highly localised and restricted occurrence. In fact, the sedge, *Cladium procerum*, is at the most westerly point of its distribution here in the headwaters of the Goulburn River. The Drip never runs dry, however, groundwater
25 dependent ecosystems such as The Drip are recognised by governments not only as poorly understood systems but also as critical components of the water cycle.

The New South Wales Government asserts the Goulburn River groundwater-dependent ecosystems are among those at highest risk statewide. State and federal
30 governments acknowledge that greater effort is urgently required to ensure sustainable planning and management. The Drip and Corner Gorge and the Goulburn River are significant as part of a transitional zone containing plants from different areas of the state and form part of a corridor between major botanical divisions of the Central Western Slopes, Central Tablelands, North Coast and Central
35 Coast of New South Wales. MDEG has great concern regarding the future of this fragile, important ecosystem.

Currently, Ulan has a bigger impact on The Drip than Moolarben, and with any
40 increase in mining this impact will increase. Can we risk reaching the tipping point at the Great Dripping Wall and surrounds drying up? The only water in the river totally dependent on releases from Ulan mine. Climate change is another matter of concern. Scope 3 emissions are ignored in this assessment. The only reason for extracting coal is to burn it. Therefore, scope 3 emissions are a direct consequence of the activity and must be included in all assessment. The 6.4 million tonnes of
45 additional coal will produce an additional 19 tonnes of carbon dioxide, and if we assume 80 per cent carbon content, this extra load of greenhouse gases is untenable in a world which is struggling to meet the Paris Protocol targets.

Professor Will Steffen, Emeritus Professor at ANU and a member of the Climate Council, warns to meet a two-degree Celsius carbon budget, a very rapid phaseout of all fossil fuel usage by 2050 at the latest, or preferably earlier, is required. The 1.5-degree Celsius carbon budget is similar – is smaller, requiring an even more rapid
5 phaseout of fossil fuel usage. This means that the majority of the world’s existing fossil fuel reserves must be left in the ground, unburned. Furthermore, no new fossil fuel developments or extensions to existing fossil fuel mines or wells can be allowed. MDEG reiterates Professors Steffen’s words and calls for no extensions to existing fossil fuel mines. This modification must be rejected. Thank you.

10

MR KIRKBY: Thank you, Robbin. Our next speaker is Julia Imrie.

MS J. IMRIE: Good morning. Thank you for the opportunity to present my views to the independent panel today. My name is Julia Imrie. I’ve lived on the Goulburn River since the mid-1970s, pre-Ulan Coal Mine Limited. I operate a small business with my husband called Goulburn River Stone Cottages and have recently submitted my PhD thesis to Australia National University labelled, or titled, ‘Changing Land Use in an Uncertain Climate, Impacts on Surface Water and Groundwater in the Goulburn River.’ I will provide a submission to accompany this presentation later in
15 the week. One thing I think all water scientists would agree upon is groundwater behaviour is extremely complex and difficult to predict, partly due to the many variables, both known and unknown.

There’s often a significant delay in the response to impacts that can take many years to become apparent, which both compound and confuse the analysis and
25 interpretation. This is my interpretation on the water system in this area and some aspects of the MOD 4 assessment. And they’re based on my own observations of the river over many years and my work as a water scientist. Coalmining intensified in the Ulan area in – from about 1982. It was referenced as 1980 I noticed in the
30 assessment, but it was a couple of years after that. We were living – we were witness to this – with the development of the first large, open cut mine.

This required a 4.5-kilometre version of the Goulburn River, and it represents the first major impact and degradation on this water system. The development of the
35 longwall mining took off in the late 1980s and early 1990s. I think it’s important to get a bit of a historical perspective of these things. Please note the 1980s drought predates the massive expansion of coalmining in this area. So you may ask what has this to do with MOD 4. I think an important point to understand is MOD 4 is hydraulically down dip from all previous workings. It’s the deepest point in the
40 groundwater system. The extraction of additional coal in the northern area – that’s longwall 30-33 – will prolong the depressurisation and lowering of the regional groundwater system over the mine footprint and beyond.

This means the continued interception and extraction of up to 28 million litres of
45 groundwater per day, the ongoing treatment of this water, or some of the water that’s most contaminated by the mining process, and the disposal of brine waste from the reverse osmosis plant currently into the east pit. That is a key part of the current

water management strategy. Now, MOD 4 expansion will delay the recovery and rehabilitation of the regional groundwater system. And the longer the regional groundwater system remains artificially suppressed by mining, the greater the interference to the upper aquifer system and risk of interception of groundwater flows that report to the river and towards the drip. So treating MOD 4 as just a small, incremental impact I believe is disingenuous. Just go to the first slide, thanks. I can do it, can I?

MR KIRKBY: Yes.

MS IMRIE: Beautiful. Thank you. Well, maybe I went too – yes, that’s right.

MR KIRKBY: Yes, went too – I think. If you go back one.

MS IMRIE: Yes. Go back one. That’s right. So each mine modification represents an expansion that prolongs – and places additional pressure on the water system and biodiversity. It’s a slow death by a thousand cuts. And this is repeated over and over again with the many modifications that we’ve been dealt. The cumulative impact is more than the incremental effects as presented.

And, look, it provides an opportunity – I suppose one of the brighter sides of it, of each modification and expansion – for the public to shine a light on the environmental and social impacts of these developments – once the approval’s given, it’s very hard to make any changes – and comment on the effectiveness of current mine conditions, of approval and, of course, the EPL or the environmental protection licences.

So some of the outstanding issues that I will deal with in my presentation today – the depressurisation and lowering of the groundwater system by mining creates this regional sink. The permanent loss of low flows in the Goulburn River during extended dry periods – of course, the current discharges mask a lot of those when they’re discharging, but when they stop discharging, it becomes far more obvious.

The thousands of tonnes of salt created by the mining process and activated by the longwall mining is currently exported offsite to the Goulburn River every year. And the east pit I believe is a bit of a time bomb. This is where – there’s a high risk, I believe, of connectivity via remnant alluvium between this pit, this old open-cut pit and the Goulburn River. And, of course, I will discuss these in more detail later on. And, of course, the permanent long-term protection of the groundwater source that feeds the Drip Gorge is a very big community concern.

I just thought I would show this slide, just to give you the extent of – you can see – of the coalmining leases across the top of the Goulburn there. The river runs from Ulan here through the middle here. So you can see it’s right smack bang in the middle. The diversion is part of that – of the river in that section. The Drip sits at the top of Moolarben’s MOD 4. And then there’s another 225 kilometres of river before it gets to the Hunter. This river is – it’s a long way. It’s a very sandy,

sediment-based river, prone to evaporation losses. And, of course, it's a long time for this salt up here to move its way all the way down through to the Hunter. 180 square kilometres is the current coverage of mining leases.

5 Look, I thought I should try a little bit of the background water levels, how they did exist pre-mining. This is an old map. And I'm sorry about the quality. It's perhaps not all that good. 1995, it was produced. But basically, it was predicting the water levels around the mine. And this is Ulan Coal Mine perimeter here, in 1995. This is where the open cut was going there and the two open cuts. And where that pink
10 arrow is, which is my addition, is where the longwall started, in the late 1980s, early 1990s. Now, the contours are actually the groundwater levels at that stage. And as you can see, they're showing a very strong flow towards the river. And here's the – the river actually flowed through the centre here. It was diverted across around – in the eighties, around the first open cut.

15 So by 1990 they had a 40-metre fall. So from three metres below surface, it dropped 40 metres. And you can see the two areas – these are again groundwater contours. The east pit and the Underground 3 were actually pulling the water towards them. So rather than it reporting to the river, from 1990 you're looking at the water being
20 drawn away and diverted away from the river and a 40-metre drop in the groundwater levels. Now, that 40-metre drop has not recovered. It's still as low as that. And it has to remain that low for the mining to continue.

MR VAN DEN BRANDE: Julia - - -
25

MS IMRIE: I might have turned it off, did I?

MR VAN DEN BRANDE: Julia, you have to point to monitor.

30 MS IMRIE: Have to point – sorry?

MR VAN DEN BRANDE: At the - - -

MS IMRIE: At that one.
35

MR VAN DEN BRANDE: Yes.

MS IMRIE: Maybe I turned it off.

40 MR VAN DEN BRANDE: Sorry.

MS IMRIE: The little pointer still works.

MR KIRKBY: I think the computer may have froze.
45

MS IMRIE: So can you get it to move?

MR VAN DEN BRANDE: Yes. I'm just trying to – try now.

MS IMRIE: Thank you. So the MOD 4 underground expansion, as I mentioned before, is hydraulically down dip from all previous workings and that's a longwall –
5 actually, it's 30 to 33. Bit of an error there. The continued mining will result in the lowering or suppression of the ground water levels over the whole underground. Obviously, the focus will be where the active wall is, but it stretches back over the whole underground. It has to be maintained at a very low level. Extending the depressurisation of the ground water system will over time increase the likelihood, I
10 believe, in my opinion, of permanent irreversible damage to the river and the drip ground level dependent eco-system. So the more you keep that groundwater suppressed, obviously, I think the more it will spread out from the regional sink.

Here's another just a map of the pre-mining Upper Triassic water table and the main
15 thing of this diagram – which I think was produced a few years ago now, 2015 – but it shows the difference between the actual groundwater divide which is this red dotted line here and the great dividing line which is the surface divide. Now, you can see the longwall super imposed over the landscape there. The pink lines are actually pre-mining Upper Triassic water table and the flow of water – the direction
20 as you can see. That clearly shows at the groundwater divide, the water flows mainly towards the Goulburn. The actual – I will just read something out here:

So when considering the true impact to the Goulburn River system, it is unclear how a mine modelling has handled this inconsistency.
25

So it's actually required to divide them into the Great Divide according to the surface divide when actually, the groundwater divide is actually well to the west. And in the modelling, this would basically mean, I assume, that it will underestimate the amount of loss of base flows to the Goulburn River. So the modelling has an inherent
30 problem in it there when you're talking about reality. Like, you can – there, how they work out the licensing requirements is why they've done that, but the reality of how much loss to the river is, I believe, different. So the complete dewatering and desaturation of the strata over the longwall panels equals a loss of groundwater flow to the river.

35 Now, there's two important quotes out of the response to submission – MOD 4. The first relates to subsidence and the quote is from Ken Mills. He basically says the mining induced fractures to the surface are expected. So we're going to get cracking induced on the surface. Depressurisation of groundwater through the full section
40 between the mine, horizon and the surface, so get – that's full drainage of the groundwater above the longwall and due to increased vertical conductivity. It's basically vertical flows. And post-monitoring indicates it may occur gradually and take several years. So the fact that they may not have picked up changes in the very, what they call, perched aquifers at the top or upper aquifers yet doesn't mean it
45 won't happen in a number of years. And that's on their own expert – subsidence expert.

Now, Dr Kalf who did the groundwater peer review also picked up on this and he raised the potential for complete drawdown and desaturation of the Jurassic which is where they're mining in under as well as the Triassic groundwater now – or strata now – and ephemeral creeks and that would include – there's three actually. There's
5 Mona Creek, there's Curra Creek and there's Curryall Creek which is barely mentioned in the report because for close and monitoring and review on the modelling. Now, this has already occurred. The actual drawdown of the upper aquifers has already occurred over the whole longwall panels and caused a loss of base flow in the river. What they have estimated is about .05 megalitres per day
10 predicted and some of that has already been happening. I believe it's a lot more than that and I think there's a bit of a fault in how they actually add up the full impacts of the mine, you know, from when it was first installed right through to current. You never actually get that figure.

15 And, of course, just relating it to Underground 4, Moolarben's Underground 4, they don't even admit there is going to be any loss in the upper aquifers. They all just hang in there and not drain. Well, it's clearly evident from what's happened at Ulan and their experts that it will also occur with – in the Moolarben Underground 4. So
20 in 1995, 2006, 2009 and more recently for a four month period between December 2017 and early April 2018, the river flow ceased when Ulan Coal Mine stopped discharging water. So this is a bit of evidence to show how we have lost our base flows. Conversely, in the 1980s, the actual river – in the 1980s drought, the river flowed and we lived there and we actually pumped water out of the river then. So
25 where you're a witness to the fact that the river did flow – obviously, it got quite low and in some places, it might have dipped under the sand and come up again – but it was flowing all through the 1980s drought.

Also, flow data from the Ulan Stream gauge which ceased in 1982 show persistent
30 flows and a permanent flow registered at that gauge. Now, that's upstream from the mine at Ulan gauge. This is the comparison of the Goulburn River flow to daily mine discharge in 2014. 2014 was quite a dry year. The mine discharged the full year. It didn't actually stop. There was a few times when it got very low discharges when they were perhaps working on their equipment, but basically it was a constant discharge of the treated mine water. But what the point with this obvious graph is
35 how closely it correlates the downstream flow. So the solid black line is the river. The dotted line is the discharge. This is where we did get some rain, so you see a few peaks here. But the dotted line basically – the river downstream basically replicates what has been released even more so in a few places that has been caught in the
40 downstream gauge.

There's also a bit disturbingly a few places where the dotted line is actually more
45 released than is caught down in the gauge. Now, it's either an error in the gauge or there's leakage happening between the release point and where downstream where they're measuring the flow further downstream. Now, this particular slide, this is the predicted end of mining drawdown in the Triassic. This is one of the mine current documents. And it's interesting to see here that in the corner, that's where the expansion is. The MOD 4 – MOD 4 expansion over here is the other one. But you

can see these contours which is the Triassic contours. They, sort of, blow out in that corner there which is curious. I don't know why they're just contained in that corner. They're, sort of, tucked in around the longwalls down here. But it – I've added the pink lines and it's basically showing that the draw in to this regional sink which will be the mined panels of the groundwater system.

Now, an interesting one here is it hasn't actually included what's going to happen or has been approved in Moorlaben's Underground 4 and how this will affect those contours. So it doesn't tell the full story. Also, it doesn't seem to explain these two faults that are occurring up in the corner there. There's Greenhills or Curryall Creek fault and Curra fault. There's not much known about that and they actually say that in the report, but I think it's pretty important that we do know a bit more about what's happening with those faults before we go ahead and mine further towards that area. Because interestingly enough, there is a creek, Curryall Creek which is, I think, mentioned once in the report. It's a permanent creek. That's a picture of it there. Sorry, about that. I pressed the wrong button.

It flows all the time. It's not a huge flow, but it's a persistent flow. It's a permanent water source that is drought proof. A water supply to the community. It's readily available from Ulan Road. You will see it as you drive past. There's a chair down there. Obviously, people go down there and start pumping out and sit on the chair while they're waiting for the tank to fill. And it's also used by the rural fire service as an emergency or at least as an access point for their firefighting use. And will it survive a five to 10 metre drop in the groundwater level of catchment because when you look at the contours, right across its catchment, it has a predicted five to 10 metre drop in groundwater. This is – it's still flowing – and I was out there just the other day and it's still flowing very well, just like it is in that photo. There's also a number of land holders that have reported loss and decline in the productivity of their private bore, so they can only pump for, you know, half an hour and they don't get much water out of it. They are getting water trucked to them. The standing water levels, it's a little bit difficult to find out because I don't know what's happening in that area, but there appears to be about a 10-metre drop in the groundwater already. And the feasibility for them to lose their pumping ability of these bores that were just – they – I think they were installed, you know, well in 1980s, 1990s and they've been pumping ever since, no problem at all. It has only been in the last 18 months that they've lost the productivity. The feasibility of installing a new bore to replace these ones – that is, as reliable and productive and as equal water quality – I think is going to be quite difficult.

So we will see, I suppose. Now, so loss of these water sources, it sterilises the land into the future for use. And it's a real shame that these areas around the Ulan district, Wollar, Turill now, getting towards Turill, are – and the Talbragar, of course, on the other side of the range are now under threat. If you lose your water, the land becomes virtually worthless. And resources like this one here, this creek here, is a great community asset. Now, I wanted to just give a bit of an indication of the decline in the Triassic groundwater over time, and that's just to show you where the points are that I've taken. There's a number of data information points. There's the

river, so you can work out the height of the river there, and there's some water points. You can't actually read those, but PZ24B, 08755, and then I think there's an 07 and a PZ10 up there.

5 So the next one just plots over time the fall in those actual monitoring bores. The –
2001 to 2005 is the top line. It's the south on this side and north on that side. So
that's the riverside, sorry, here, Goulburn River here, The Drip is – so I've shown
you the height of The Drip there in relation to the river and the groundwater. So the
groundwater is still above The Drip, and The Drip is still dripping. But you can see,
10 on – in 2001 to 5 it was up here, in 2012 it has dropped down to this layer. 2015, it
has now dropped to this layer. That little jump there is – can't really explain that
little dip. Maybe it's just because it's not in a straight line. And in 2018 you've got
the current water levels.

15 So you've got a drop somewhere between about two metres in 24, and that actually
was put in post-mining, I might add, so might have been more than that from before
mining. But at least two metres here up until this point here, which is about 40-metre
drop between 2001 and 2018. Pretty substantial. This is in the Triassic layer, too.
This is not the coal seam layer. This is the upper aquifer. Now, this is one of the
20 diagrams that are put in to justify that The Drip is a separate water source to the
regional groundwater system. I have a bit of a problem with this diagram. There's
quite a few errors in it. I will just go to my notes, sorry, just so I don't forget
anything.

25 It's a conceptual geological cross-section north-south, and you just have to flip your
mind a little bit because my one went south-north, that last one. This is now going
the other way around. So that's the mining side of the river. Moolarben side of the
river is on that side, and the river is just this little point in here. Now, the actual bed
of the river is incorrectly shown. It's not – it's much deeper than what's shown on
30 this map, and I will show that in the next slide. The scale is wrong. It's double. So
the scale is not wrong – is not right. The dip of the coal seam there, well, when I
looked it up, the coal – Ulan coal seam was actually up here somewhere, so I don't
know if that's the problem with the scale being wrong, but it certainly didn't seem to
be – it didn't correlate when I looked at the measurements.

35 And also, the dip of that strata is very much exaggerated and really oversimplified.
So I think it's sort of – you can probably ignore those lines. So zooming in and
having a look at this, you can see the river bed is not actually shown where it is. The
riverbed is actually down here. The Drip is actually 381 to 387. That's on the
40 measurements that Ulan has taken. Not 400. 400 is to the top of the cliff. It's not
where the water comes out. They haven't included R755, which I think is a bore
which they should have included because it's quite important. They also have
mislabelled PZ29. It's mislabelled as PZ09. Took me a bit of a while to work that
one out, but, you know, that was – that's just a typo, really.

45 And also, they include – it should be PZ29 – they include PB12, which is private
bore 12, which my bore. I know a lot about that bore. And it's actually on the other

side of the river. They've got it on the southern side of the river when, actually, PB12 – that's my red arrow there – is on the southern side of the river, and really, it discharges into the river. So it shouldn't be part of that diagram. It's spurious. So they've got the two levels here of groundwater drainage and as far as I can see, the
5 actual drainage – I believe anyway – is more consistent coming into the river and to the drip at a higher level. But, once again, all these things are opinion and interpretation. And that is my interpretation. Certainly, there's so many errors in this diagram, I don't think you could really rely on it. It's inconclusive and does not prove the claim that the potential for the regional groundwater table to be
10 hydraulically disconnected from the drip. It doesn't prove that case. The other point that they rely on is the hydrochemistry. And I also don't agree on the hydrochemistry. There has been quite a few samples taken and Ulan has supplied that data, so that's good.

15 I've also taken a number of samples and my data roughly is roughly the same hydrochemistry that Ulan is coming up with. I look at it slightly differently. I look at it from the point of view of layers in the drip. They look at it from a north and south point of view. That's okay. But it's the dominant water type. Sodium is still dominant. Like, if you look at it, they've still got the highest amount of milligrams
20 per litre in it. The next one has got elevated – magnesium and calcium are both elevated. So it's NaMGCa water type. It's dominated by bicarbonate, which I think is very interesting, which is a bit more than chloride and sulphate.

Now, this is very similar to a number of the groundwater results for the north
25 monitoring network and particularly 755 PZO7 and PZO1. And when you actually look at this – this is a piper plot, for this – sorry, I should have probably said at the beginning – and basically it's sort of like a plot of these different ions, to see how similar the different water types are. Now the cluster of little red starts there, that's the drip. And then you can see there's a few near to it and these are some of the ones
30 I've just mentioned above, R755, PZO7 and PZO1. So they are actually quite similar on a piper plot. A piper plot is not the be all and end all of identifying water type, but it just gives you a bit of an idea on similarities. And, of course, as the water moves through the landscape, you get a bit of change, a bit of a transition. So you're not going to get exactly the same anyway, when you're looking at a discharge point,
35 you know, kilometres away from the original point of start.

So the other difference – I don't know whether it's because of that, but I plotted is a per cent milliequivalents, which is usually how you do it. They may have plotted it as milligrams per litre or something like that. I'm not 100 per cent sure. There
40 wasn't anything on their diagram to say how they did – what units they used. The cumulative impacts have not been very good and this has been discussed in earlier speakers. And this is a diagram taken from the report, which shows the cumulative impact. And the big one here, as I mentioned earlier, is it doesn't include the impacts for Moolarben. Now, that could really change that drawdown pattern. And this is
45 why we keep asking to look at it properly at the cumulative impacts and it keeps getting overlooked.

The little dots over here are some of the private bores that are going to be affected. I suspect also that it doesn't tuck in – I just find it hard to believe why the groundwater system would stay so close to the longwalls here but blow out up here. I know it's part of their modelling, but really there hasn't been the sampling of the groundwater
5 in this area down between the mine and the river. There has never been any data in that area there. The only one is this new one, which is about there, which was put in 2016. So due to lack of data – I'm getting close. Sorry. Okay. The east pit and the riverbed alluvium is another area of concern.

10 And with the east pit, the problem – the response to submissions doesn't mention all the inputs and outputs that goes into the east pit. The saline water concentrate from the reverse osmosis plan is pumped into the east pit for disposal. Paradoxically, water from the east pit is also mixed – drawn out of the east pit and mixed with the treated RO water to get it below 900 and then discharged into the Ulan Creek and
15 Goulburn River. So it's a bit of putting the waste in and then drawing it out again. I don't quite understand why they do it that way, but anyway it seems to work for them. The standing water – sorry. The standing water levels are deliberately kept below 370 metres above – can I keep going?

20 MR KIRKBY: Look, if you could wrap it up, because we've got a few speakers with quite a bit to say, so - - -

MS IMRIE: Okay. Now, the problem here is the leakage between the river, which is here, and the east pit. And you can see there's only 150 metres. And this is the
25 old bed of the river, where there would be alluvium. So I will just leave it at that. The east pit mix of groundwater rainfall and waste brine, I think, is also a point that I've already just dealt with. So the groundwater monitoring of the east pit – I think we need to map the alluvium between the east pit and the river bed. We need to investigate possible saline seepage from the old open cut and river diversion. And
30 this may explain some of the unusual spikes in EC.

And I'm just wondering who the compliance officer – that's just some examples of some saline deposits downstream on our property. It was in a dry period and it tends to wick up the banks and by capillary action and deposit on the side of the banks, of
35 concern. This – I won't talk about that one. But just in a summary, the approval of MOD 4, if it went ahead, I think it would require some pretty major improvements to the current water management, a lowering of the EC discharge to background levels in the river, which is around that 500 EC mentioned earlier. The prioritisation of the river ecology over the use of the water for irrigation and mine operational uses, so
40 that low base flows in the river must be sustained during dry conditions.

This is maintaining the regime, the environmental condition of the river by augmenting those low base flows. The east pits needs to be looked at. It's a bit of an environmental time bomb. It requires some long-term solutions. And a disposal of
45 the RO saline waste water into the east pit should not continue. And I think, most importantly, we need a plan post-mining for water management, because once the mine goes, how is the river going to be maintained, because it will actually probably

stop flowing for most of the year. And we need an overall vision for the mine site to take us through to the post-coal era. We've had these mines now for 30 years, 40 years. It really is time that we had a plan.

5 MR KIRKBY: Okay. Thank you, Julie. Our next speaker is Colin Imrie.

MR C. IMRIE: Is that right?

MR KIRKBY: Yes.

10

MR IMRIE: Thank you for the opportunity to have my say. These are my own views and not those of the Rural Fire Service or of Cooks Gap Rural Fire Brigade. The Ulan Coal Mine Limited proposed expansion is being put forward for approval at a time when all available evidence clearly shows the world's climate is changing.
15 A dangerous escalation of global temperature and climate is now plain to see. Such evidence cannot be dismissed as due to natural cycles.

On the contrary, it can only be explained as a result of human actions. This unfolding catastrophe is our creation, fuelled by a multitude of everyday decisions to
20 ignore the risk and carry on with business as usual. Climate change enhanced disasters, such as the recent killer heatwaves in India and the alarming collapse of biodiversity recorded worldwide over recent decades, all are happening with just over one degree global temperature rise. This is merely the beginning. Australian Capital Territory Government Minister Shane Rattenbury bluntly recognised the
25 gravity of this crisis when he spoke at the recent Australia Energy Week Conference in Melbourne. To quote him:

Human-induced climate change is cooking the planet. We're at risk of ecological and societal collapse. This is not some green hyperbole; this is the analysis of the world's scientific community.
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Now, it may seem too obvious a point to make, but it seems to me that if we are to save ourselves and to have any hope of salvaging something from this mess, an essential starting place is everyone agrees to stop making things worse. This
35 undercuts the sole argument and justification of this proposal, which is the claim of public wealth created. To quote Minister Rattenbury again:

The potential damages from climate change to Australia at current global emission patterns are conservatively quantified at 584 billion in 2030 and 762 billion in 2050.
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Now, I don't know where he got these figures from, but they're pretty large, aren't they. The key take-home message of relevance to this independent panel is that the cost of any further expansions to mining coal may prove more than the value of the
45 resource. MOD 4 furthers the footprint of adverse mining impacts over time and scale to the north and to the west. From that viewpoint, this proposed expansion cannot be evaluated as a minor change. I see it as the latest in a long history of

incremental mining expansions that have damaged the viability and resilience of the Goulburn River and the way of life of landowners in the Ulan-Turill-Wollar area. The mine expansions in this area have demonstrated inadequate or nil consideration of the whole of the impacts and a government regulator shamefully disengaged from critical evaluation. Compared to the claims of jobs and wealth, the people who have put their all into establishing homes and businesses here are just collateral damage, someone else's problem. Any holding of multinational mining companies to account or the identification, protection and valuing of irreplaceable local assets such as the Drip and Corner Gorges or Curryall and Mona Creeks has been left exclusively to members of the public working unpaid in their own time. I have listed some of the most egregious historical examples on the back page of my written submission; but I won't read them out now, you will be relieved to hear.

The outcomes of mining in this area clearly show approvals have been based on flawed concepts and modelling. For me, the most annoying examples of this are firstly the persistent reliance on theoretical underground barriers that supposedly prevent connectivity and isolate from degradation the overlying ground and surface water. Secondly are the oft-repeated claims that perched aquifers are somehow immune from nearby wholesale collapse of strata and de-watering at a landscape scale over decades. These unverifiable claims have a post-truth life of their own which allows understaffed and – by their actions – uninterested state, federal and local government agencies to sign off uncritically everything put in front of them.

Since before I did my basic training in 1989, I've been an active volunteer firefighter. Presently I am deputy captain and brigade training officer for this area's one remaining bushfire brigade. As part of the reading for this presentation, I was horrified to see that a five- to 10-metre drawdown has already been approved in MOD 3 over most of the catchment of Curryall Creek. That's in appendix C of the Response to Submissions, figure 3.6.

Sadly, we were preoccupied at the time and missed the danger for this precious perennial local stream. I am sorry. I believe the drying-up of this reliable water source will make fighting fires in the Ulan-Turill area much harder and less safe. The bridge on the Ulan Road crossing Curryall Creek is the only publicly accessible water-drafting site between the Drip picnic area and the Murrabline Creek at Turill.

Dealing with lightning strikes or roadside fires as first responders and for training purposes is where water-drafting sites like Curryall Creek are most appreciated. At a major fire, tankers can re-fill with bulk water carriers and use aircraft support. However, even at a big fire, standing water sources able to be used for water drafting even in dry times are an increasingly rare option that could turn out to be lifesaving. The loss of this irreplaceable public asset will be made yet more certain by this current modification. And as a firefighter and local landowner, I strongly protest at this.

It's not as if the existence of this water site is any secret. The nearby Greenhills, there's the site of a 19th century inn, while across the highway are the remains of an

old steam-powered flourmill, and as well, on cadastral maps there's shown a cluster of small acreage old blocks. These are clear indicators of a reliable water source, well known since the 1800s but now considered of no value compared to maximising exploitation of the coal resource.

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I also have to mention Mona Creek, which is on page 7 of the Response to Submissions. This ephemeral water course or series of moist vegetated gullies is one more natural asset set to be degraded by this mining process. I have been on previously longwall-mined land nearby at hazard reductions and vividly remember falling into surface cracks that were common across the longwall-mined ridges and gullies.

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Calling Mona Creek alluvial system "perched" or "hydraulically disconnected" is a highly qualified theoretical distinction. Collapsing underground underlying strata and systematically dewatering the area must change everything as far as the vegetation and wildlife are concerned, not to mention any Aboriginal heritage sites. These gullies may no longer be moist in dry times, and the ancient song of the lyrebird no longer echo there.

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Throughout the many years that we've lived on the Goulburn River, for our way of life and the business on which we depend a viable river and groundwater system has been crucial. Without water, the land is sterilised, effectively. Undertakings by mining companies to truck water in cannot alter this basic fact. Without sustainably managed water resources, no one can live on their land permanently, and there's no hope to meet the challenges of a changing climate.

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Recently, my daughter had the idea to move back home and try to set up a business, and we had a lovely conversation about her dreams for the future. Everyone wants to hand on something of your life's work to our daughters and our sons. Unfortunately for us, this dream is not going to come true while there is uncertainty, conflict and environmental degradation from the ever-expanding coalmines upstream.

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Repeated solemn commitments have been made by our leaders internationally, nationally and at state level promising real action and commitment to deliver sustainable management of water resources, protection of our rivers and groundwater. Whether these were genuine undertakings made with real intent to actively prevent degradation of our rivers and aquifers or just empty words can be judged by how they are applied. I request that this independent panel consider and honour commitments made by New South Wales and Australian Government to sustainable water management, to protect and restore rivers and aquifers. Thank you.

MR KIRKBY: Thanks, Colin. We might just make a 10-minute break right now. We will reconvene at about quarter to. 15 minutes.

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ADJOURNED

[10.36 am]

MR KIRKBY: Our next speaker is Alison Smiles-Schmidt, representing the Wollar
5 Progress Association. Thank you, Alison.

MS A. SMILES-SCHMIDT: All right. Hopefully that's okay. Thank you,
commissioners, for the opportunity to represent Wollar Progress Association at this
public meeting to hear the community's view on the assessment of the Ulan Coal
10 Mine MOD 4 proposal. It is not that long ago that we were here before you in regard
to the proposed Moolarben Mine MOD 14. We welcome the fact that there is some
continuity of commissioners considering the impacts of mining in this area, including
the proposed Bylong mine. All these large coal mines are in the upper catchment of
the Goulburn River. Wollar Progress Association has a direct interest in the planning
15 and approvals process for these significant projects because their environmental and
social impacts have been profound. Our members and community have been directly
affected by the combined impact of these mining operations.

A key issue for us is that these mines never stop expanding. Each modification
20 causes an additional environmental and social impact on top of those already being
felt. We are continuously spending our time reading copious documents of
environmental assessment that focus on downplaying the impacts rather than
acknowledging their extent. The assessment of Ulan MOD4 is a perfect example of
how each expansion is treated as an individual project, assessed as a minor
25 incremental increase of impacts and argued away as being of no consequence other
than the royalties that will go to the State Government.

There is no compensation provided for our stranded community members reliant on
the Goulburn River for basic water rights access, inconvenienced by more and more
30 coal trains, while the district continues to be emptied out of mine neighbours and our
village of Wollar has been decimated. We object to Ulan MOD 4 because it will
increase the impacts on the Goulburn River. Our submission noted that the
assessment report prepared by Eco Logical Australia does not assess the combined
impacts of surface flow capture and loss of groundwater base flows to the Goulburn
35 River over the three operating mine sites.

The Response to Submissions report and the Department of Planning assessment
report do not address this important issue. We believe that the total capture of
surface water and groundwater across the three operating mine sites on the
40 headwaters of the Goulburn River could amount to over 20 billion litres per year.
This is a large amount of water to remove from the landscape of an unregulated
stream that is totally reliant on rainfall runoff and base flows. This annual volume of
captured flow equals about four times the annual water usage of the Mudgee region
from the Cudgegong River.

45 The town water supply for Mudgee and Gulgong and the irrigation industry have
some reliability because of the regulation through Windamere Dam. The Goulburn

River is unregulated, therefore reliability of water access to downstream water users is variable and further threatened by the scale of water intake to the large mining operations. Together, they impact on 190 square kilometres of the headwater catchment. The various exemptions provided to the mining industry under the current New South Wales Government water policy have a direct impact on the water users who rely on the river. It is only fair that independent decision-makers have a full understanding of the extent of these impacts so that the industry is managed under conditions of approval that mitigate or compensate those impacts.

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10 We note that Ulan Mine is supposed to monitor impacts on water users. This is not happening. The Response to Submissions claims to have dealt with the combined impact of the mines by reviewing stream flow at the mid-river gauge at Coggan. This gauge is 125 kilometres downstream from Ulan Mine and is below the inflow of the Munmurra and Krui tributaries. Most of our members on the Goulburn River live above these tributaries and directly below the three mines. There is no other gauge of river flow or quality besides the SWO2 directly below Ulan Mine.

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20 Therefore, the assessment of combined impact on surface flows does not address our concerns that the flow in the Goulburn River, particularly at times of low flow, is directly influenced by mine water discharge. The Response to Submissions has failed to demonstrate that the Cease to Release event in December 2017 was inside the normal variability of river flow for the section of river above the tributary inflows where many of our members live. The reporting on measurement of flow history in the river includes flow records from the discontinued monitoring at Ulan. This shows that the upper catchment had a good record of low flows before the mine. It was very convenient for this monitoring to stop once mining at Ulan commenced.

25
30 Many of our members and associates have lived on the river before mining on such a large scale started and they've seen a marked deterioration in river health over the past 30-odd years. It is important that natural low flows and base flows are replaced in the river by mine water discharge in a manner that reflects natural flow conditions. We are very concerned about what happens after mining ceases. How will these flows then be replaced? The ongoing destruction of the source of base flows to this river system cannot continue. While the Response to Submissions emphasises that additional base flow loss from MOD 4 is minimal, it is an additional impact that has not been clearly added to the extent of losses now occurring in the river system.

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40 The loss of low flows in the Curra Creek tributary through subsidence is an additional impact. The fact that springs and alluvial aquifers are not included in the groundwater model means that important sources of base flows in the system are not even considered in the predictions. Wollar Progress Association believes that our members with basic rights on the Goulburn River should be compensated for the loss of base flows through the regulation of all mine water discharge to the confluence of Wollar Creek so that a more natural flow regime is reinstated in the river. We urge
45 commissioners to recommend the addition of environmental flow rules in the EPLs for mine water discharge from Ulan, Moolarben and Wilpinjong mines.

Our other major concern is the decrease in water quality in the river over time. In the past, we have seen salt slicks along the riverbank for up to 25 kilometres below Ulan Mine. The salt load in the river system includes the high levels of salinity discharge prior to the Ulan EPL restrictions issued in 2003. The combined load of salt entering the river from Ulan and Wilpinjong mine water discharges is significant and needs to be better controlled. Ulan Mine is the highest source of mine water entering the river system. The current control on salinity levels at 900 EC is three times the background levels above the mine.

We note that the planning report comments that the salinity at gauge SWO2 is lower than downstream, the increasing level of salt load in the river bed to be measured below Wollar Creek. The EPA pointed out in a 2013 report that more gauges are needed in the Upper Goulburn Catchment to measure increased salinity from the three mines. Wollar Progress Association recommends that the maximum salinity level for mine water discharge is lowered to 500 EC. Our members rely on the river to grow food, water stock and use in our households. Especially during the prolonged hard droughts we are now facing, we are directly impacted by the deterioration of water quality through increased salinity and salt loads in the river.

The long-term health of the Goulburn River is critical to our survival. Critical human needs is a priority under the New South Wales Water Management Act 2000. We would appreciate the protection of our needs through stronger regulation of mine water discharge. We note that the Department of Planning report has a heading in the Surface Water section for Water Users. The report concentrates on the lack of private landowners using water from Mona Creek and Curra Creeks impacted through subsidence. However, it also refers to water users downstream from the modification. There is a requirement under existing conditions to provide compensatory water supply to any landowner whose supply entitlements, including surface waters, are adversely affected by the project. There is no strong argument for the need to further disturb our water sources through the Ulan MOD 4 proposal.

Ulan Mine and Glencore already have approval to extract 28 million tonnes of coal per year for another 14 years until 2033. By that time, climate change will be such a huge impact on our lives and the Australian economy that any slight public benefit through royalties will be overshadowed. I want my grandchildren to be able to enjoy a healthy Goulburn River like I and my children have in the past. The state of the river now is fairly disgusting. Climate change is likely to further erode our access to water. No more water should be allowed to end up inside a coal mine. The current impacts on the Goulburn River will last for generations.

We have no idea what will happen once the mining companies pack up and move out. Members of Wollar Progress Association appeal to you, Commissioners, to find that the current impacts on the river are more than enough. Ulan MOD 4 is an additional impact that cannot be approved. Thank you.

MR KIRKBY: Thank you, Alison. Our next speaker is Bev Smiles from Hunter Communities Network.

MS B. SMILES: Thank you, Commissioners. Just before I started, I would just like to say that this setup for speakers today for the community is really uncomfortable, you know, for us to have to stand here holding a microphone – and it’s not a very good microphone – for a period of time. It’s just making it more stressful for everybody. I just wanted to make that comment.

MR KIRKBY: Sure.

MS SMILES: Thank you. So Hunter Communities Network is an alliance of community-based groups and individuals impacted by the current coal industry and concerned about the ongoing rapid expansion of coal, coal seam gas exploration and mining in the region. The Department of Planning and Environment (DPE) has stated in their assessment report of the Ulan MOD 4 application that the coal production from the Mudgee region has grown to such an extent that it now constitutes 20 per cent of the New South Wales coal output. Current approvals amount to 58 million tonnes of coal extraction per year. The level of cumulative disturbance of the landscape over a large area of the headwaters of the Goulburn River is a significant permanent legacy that will not be mitigated.

These large mining operations are dewatering the landscape and sterilising large areas of productive agricultural land from future use because of the permanent disturbance to productive groundwater sources. The Ulan Mine and Moolarben mine approved underground operations are already demonstrating a significant and underpredicted impact on all water sources. The permanent loss of bores and springs on mine-owned land is not reported. The ongoing impact on private bores and spring-fed dams, particularly from the Ulan Mine, is significant and has long term social and economic impact on the farming community in the region. The permanent loss of good quality water to future agricultural production has not been costed.

These impacts are not addressed in the assessment of ongoing mining expansion in a vast area. I’m a member of the community consultative committee for the three mines in the area, so I have a fair idea of some of the key management issues. The process of getting any detailed or transparent information from the companies through these committees can be quite frustrating. The assessment of this proposal before you, the expansion of longwall panels at both Ulan underground mines, is an exercise that demonstrates the key failings in the current planning and approvals process in New South Wales. This current modification is not a minor impact. It is additional to a major impact and cannot be considered in isolation to the damage being wrought on the environment, the Goulburn River, the regional farming community and Aboriginal cultural heritage.

The local community has engaged in the development processes for these large mining operations for the last 30 years and have seen time and time again that predictions, particularly in regard to water impacts, have been significantly understated. We have had to work to gain a number of improvements in the management of environmental impacts. Our initial focus was on the salinity levels of mine water discharge from the Ulan Mine into the Goulburn River. We had to go

to freedom of information to get the water testing data to explain a 25-kilometre salt slick along the riverbank in the late 1990s. This finally led to an EPA pollution licence that – with restrictions on salinity levels.

5 However, the cumulative salt load deposited in the river sediments is still working its way down the river, and the 900 EC limit is nearly three times greater than background levels. The second issue we lobbied on and raised in ongoing submissions to mine expansion from 1998 was the condition of the river diversion at Ulan Mine. Finally, as an offset to doubling the size of Ulan Mine in 2010, DPE
10 placed a condition on the approval requiring the rehabilitation of the river diversion. This work has finally been completed nearly 30 years after the impact occurred. The local community has also put a lot of effort into campaigning to protect The Drip from mining impacts.

15 The planning assessment panel determining Moolarben Mine stage 2 recognised the significance of this local natural feature and recommended its protection. This recommendation assisted the community in getting a commitment from the New South Wales Government to protect the actual physical escarpment containing The Drip in an extension of the Goulburn River National Park. There is also a condition
20 on both Ulan and Moolarben mines for no impact on The Drip. We are still concerned that the groundwater system behind The Drip is not protected from ongoing regional drawdown. As you are hearing today, the health of the Goulburn River and The Drip are still a key concern for the community.

25 We trust the Commissioners will take note of previous determinations and recommendations to improve the management of water sources impacted by mining in this region and to take this opportunity to apply additional improvements. The community has raised a number of solutions for better management of mine water discharge into the Goulburn River. We trust the Commission to give these serious
30 consideration. Analysis of the DPE assessment report. This report has a number of key failings and incorrect information. For example, it states that the Ulan open cut mine is completed, whereas it is actually in care and maintenance. The analysis of submissions fails to mention that downstream water users lodged objections, and the value of royalties seems to increase throughout the document.
35 The report states that no properties would be acquired because of MOD 4, however, then reports that the Billir property has recently been acquired because of current approved activities. The ongoing loss of private landholders in the region is significant and not assessed. The report emphasises that DPE is required to assess the modification application on its merits, and that it would have a very minor impact
40 on the Goulburn River system from both an incremental and a cumulative perspective. However, there has been no analysis of cumulative impact.

No information has been provided in any of the assessment documents that outlines the level of current approved impacts on water sources and particularly the Goulburn
45 River from across the three mining operations. The comparison of the MOD 4 application to the approved MOD 3 expansion fails to outline the overall impacts of the Ulan West Underground, Ulan Underground 3 operations, combined with the

impacts of the Moolarben and Wilpinjong mines. There is no genuine commitment from the New South Wales Government or its agencies to clearly consider the cumulative impacts of large-scale mining, particularly in the Mudgee and Hunter regions. We trust that the commission will demonstrate its independence by not
5 being directed by government agencies but by commissioning your own independent research into the cumulative impacts of these large mining operations on a significant tributary of the Hunter River system.

10 The response to concern about the broader regional groundwater impacts states that these have been assessed for previous applications. However, the conditions of approval fail to adequately manage these impacts and the predictions on the approvals have been – on which the approvals have been made are often demonstrated to be incorrect after the approved operations commence. A statement in the report regarding salinity levels highlights that the downstream gauge at Ulan
15 Mine, SWO2, measures lower levels of salt than further downstream gauges. Well, we would hope so. The downstream gauges are measuring a cumulative salt load, including discharges from Wilpinjong Mine and the probable salt slug moving through the system from previous deposits in the banks and riverbed and also reporting from the wider catchment.

20 Hunter Communities Network does not consider that additional loss of base flows, increased subsidence impacts on Curra and Mona Creek, increased inflow into the mine, causing more surplus water, increased drawdown on private bores, increased salt load into the river, additional loss of threatened species habitat, additional noise
25 impacts and additional greenhouse gas emissions is minor and of no concern. The DPE report concludes that both groundwater and surface water impacts are not significantly greater than those approved and will be adequately protected by existing performance measures and trigger action response plans or TARPs. We strongly disagree with this conclusion and provide further comment on the document posted
30 on the Ulan Coal Mine website titled Surface Water and Groundwater Response Plan Dated 2016.

In analysis of this document, table 3.1.6, the surface water TARP, appears to have the monitoring parameters for the upstream and downstream gauges confused under
35 the EPL water quality section. Water quality action is based on three months of elevated averages before any further investigation occurs. This does not protect the health of waterways. The stream health monitoring needs a wider spread of monitoring points. Table 3.4 provides the criteria, monitoring and reporting measures for base flow loss for surface water sites and the Drip. The criteria for
40 action is other than predicted loss of base flow in the Goulburn and Talbragar Rivers, accounting for reasonable variability.

Trigger A is based on trend analysis of two consecutive years of base flow loss above the EA predictions or a complaint from a private landholder. Trigger B is based on
45 trend analysis of three consecutive years of base flow loss above the EA predictions or complaints received from more than one private landholder. So the action is to review monitoring data, historical averages and operational data, and then develop a

remedial action plan that's reported in the annual review. There is no mention of how this will be managed if base flows to the Drip are lost. Ulan Mine has a condition that they must ensure that the project has no impact on the water supply to the Drip.

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The TARP does not protect base flows to the Drip. It is a monitoring and reporting mechanism with a remedial plan left to a later stage after two or three years of impacts have been measured. This process provides no confidence that anything will happen once base flows to the Drip are impacted. Therefore, the DPE conclusion that the TARP is adequate protection does not hold up. Section 3.2 on groundwater impacts is based on a report produced in 2009. The information on private bores does not include the increased impacts from recent approvals. The MOD 4 assessment refers to 14 private bores already impacted by MOD 3 by a significant drop in water levels and further drawdown by the MOD 4 proposal.

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The assessment of groundwater-dependent ecosystems undertaken in 2009 failed to identify the springs that dot the landscape in the region. Many spring-fed dams exist on mine-owned land and are significantly impacted by subsidence and drawdown. The permanent loss of springs impacts on future viability of established grazing operations. Springs often provide base flows to surface water sources in dry times. The TARP for groundwaters concentrates exclusively on privately owned bores and has four main responses: increase monitoring frequency, provide alternative water supply for existing uses if Ulan operations are found to be the cause of depressurisation, lower or replace bore hole pump or replace the entire bore.

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All these options are very disruptive to a farming enterprise, often with the onus on the landholder to prove that the mine has caused bore levels to drop. There is no mention of loss of spring water and spring-fed dams in this document or any reference to monitoring these important groundwater sources. As mentioned earlier, there is an area to the west of Ulan mine accessed by Blue Springs Road. This name did not come about by accident. People settled these areas historically because of the access to abundant and good quality water. This is now being sucked into mining operations, polluted and spat back out as mine waste water. This is not a sustainable use of a precious, irreplaceable and critical resource, particularly in times of drought.

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We note that in the recommended consolidated conditions, schedule 3, condition 39 requires that the groundwater monitoring program monitor and/or validate any groundwater bores, springs and seeps on privately owned land. As pointed out, there is no reference to monitoring springs and seeps in the TARP. We consider that the impacts on bores, springs and seeps on mine-owned land is equally as important in regard to the protection of base flows and groundwater dependent ecosystems. The fact that the groundwater model does not simulate these important natural features means that the predictions do not reflect the extent of the impacts on a landscape scale. There is no reference in the surface water and groundwater response plan to changing mining operations, because the impacts are far greater than predicted. This means the social and economic impacts on the rural community are never clearly or fairly assessed.

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It also means that the loss of GDEs that have never been mapped and their associated water sources is an unrecognised environmental – sorry – impact with long-term implications that are not accounted for. This is not a sustainable planning and assessment process. We also note in this document that compliance criteria based on project approval applies to monitoring and reporting measures for base flow loss and the drip, environmental incidents and channel stability monitoring for Ulan and Bobadeen creeks. Now, there are a lot of other actions with no compliance criteria. And this could be tightened up through the approvals process and strengthening of the conditions of consent. The tarp does not actually meet condition 40.

This requires a surface water and groundwater response plan to describe what measures and/or procedures would be implemented to (a) respond to any exceedances of the surface water stream health and groundwater assessment criteria; (b) offset the loss of any base flow to the Goulburn and/or Talbragar Rivers and/or associated creeks caused by the project; and (d) mitigate and/or offset any adverse impacts on riparian vegetation. All these measures are pushed to an undescribed remedial plan that will be reported in the annual report. The only measure met is the four responses to loss of privately owned bore water. So I would just like to make some additional comments on the consolidated conditions of consent. Firstly, noise: we note that the EPA recommendation in regard to increased noise from the new ventilator shafts is to actually raise the complying noise levels at two properties. This is reflected in condition 2(a).

This is further demonstration of government agencies protecting and prioritising proposed mining operations above the health and amenity of neighbours. Next, air quality: the recommended air quality conditions 19 and 20 do not reflect the changes to national air quality standards that have been adopted in New South Wales. These are annual average PM10 standard of 25 micrograms per cubic metre, annual average PM2.5 of eight micrograms per cubic metre and for one day average, PM10 of 25 micrograms per cubic metre. So they're the new changes that have been adopted by the government. The recommended conditions still contain the old PM10 standard of 30 micrograms per cubic metre and have not included the new PM2.5 standards at all. I have requested an extension of time.

MR KIRKBY: Yes. I will just acknowledge you requested a couple of extra minutes.

MS SMILES: Thanks very much, Chair. Lastly, condition 29, dealing with base-flow offsets, has not been updated with the new figures. The note on the condition states that:

As of the date of this approval, base-flow losses for the Goulburn River and Talbragar River are modelled at 0.05 megalitres per day, 0.13 megalitres per day respectively.

This does not reflect the figures reported in the response to submissions appendix C that states the Talbragar base-flow loss as 0.217 megs a day, with a predicted

increase to 0.220 megs a day. We continue to object to the modelling process used to predict base-flow losses to the Goulburn River. We believe that these losses are far greater than the 0.051 megalitres per day as predicted under the MOD 4 assessment process. The groundwater gradient flowing towards the Goulburn River is a key issue that must be addressed by the commission. Condition 31, dealing with mine water discharges, should give direction to the EPL by requiring a maximum salinity limit of 500 EC and triggers for discharge volumes based on background natural flow levels and antecedent conditions. This brings me to options for changes to management of mine water discharge.

We remind commissioners that consideration has been given to lowering the salt discharge limit at Moolarben Mine. The community has been calling for consistency across the three mines to limit maximum salt levels to 500 EC. We note that this issue was raised in the meeting between Ulan Mine and the commission on 12 June. And the proponent outlined the fine balancing act between water balance and salt balance and storage issues. These arguments are a very strong case for leaving the salt and the water right where it currently is stored in the landscape. The proposal to continue activating extraction of groundwater and salts cannot be justified. The losers in this process is the health of the Goulburn River and the impacts on the values in the national park that are not monitored, impacts on downstream water users and possible impacts on the Hunter River Salinity Trading Scheme.

Any growing compromise to the trading scheme will have significant economic impacts on the power industry and mining industry below the confluence of the Goulburn River. And this includes many other Glencore operations in the Hunter. So looking quickly at the economic justification for mine expansion, Glencore does not need to produce an additional 6.4 million tonnes of coal to maintain a viable mining operation or provide job security. There is already approval to extract 28 million tonnes of coal until 2033. The entire justification for Ulan MOD 4 appears to be the royalties it will generate. Hunter Communities Network commissioned an economic analysis of the proposal by the Australia Institute that I will table. This found that the economic assessment is very poor. The royalties in present value terms will be lucky to be \$10 million. This will not compensate for the ongoing economic disturbance caused by the impacts of expanding mining at Ulan Coal. So in conclusion - - -

MR KIRKBY: If you could wrap up.

MS SMILES: I'm wrapping up. The assessment of this proposed modification appears to be very rushed and sloppy. The current surface water and groundwater response plan will not protect surface waters and groundwater from further impact. The recommended consolidated conditions do not reflect contemporary standards or protect the environment for harm. There is no valid public benefit or economic justification for MOD 4. If the commission sees fit to approve this modification, then the opportunity must be taken to improve the impacts on the Goulburn River by lowering the maximum salinity levels and requiring management of mine discharge to better reflect background flows and rainfall patterns. And, finally, additional flow

and water quality monitoring is needed downstream for mining operations. Below the confluence of Wollar Creek would be an appropriate point. So thank you, Commissioners, for your time today.

5 MR KIRKBY: Yes. Thanks, Bev.

MS SMILES: And we look forward to reading how the issues raised in this submission have been considered in your final determination. And thank you very much for the extra time.

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MR KIRKBY: Thank you, Bev. Our next speaker is Melissa Gray from the Inland Rivers Network.

15 MS M. GRAY: Thank you for the opportunity to speak today on behalf of the Inland Rivers Network at this public meeting about the Ulan Coal Mine Modification 4. My name is Melissa Gray and I live in the Macquarie Valley in Dubbo in – just over the hill. The proposed extension to the Ulan Coal Mine Modification 4 is of extreme concern to the Inland Rivers Network. As advocates for healthy rivers in the Murray-Darling Basin, we consider that the potential risk of this mine extension to
20 the base flows at the Talbragar River is too high.

Rivers and freshwater sources around the world are increasingly and alarmingly under threat from over-extraction, declining water quality and climate change. The most exhaustive global analysis of rainfall and rivers was conducted by a team led by
25 Professor Ashish Sharma at Australia's University of New South Wales in Sydney. The study relied on actual data from 43,000 rainfall stations and 5300 non-urban river monitoring sites in 160 countries. This study has discovered the worrying paradox that most regions in the world show decreased stream flow with higher temperatures and increased rainfall events. Global freshwater supplies are shrinking
30 at the same time as climate change is generating more intense rain.

The culprit is the drying of our soils. Evaporation is extremely high and our soils are getting very parched. Across the world, this study has shown that small-to-medium floods – the kind of floods that fill our dams – have reduced by 10 to 15 per cent for
35 each degree rise in temperature. Now, we've already had a 0.9 degree rise in temperature with a 3.5 degree rise predicted by 2100. Researchers are pointing to a world where drought-like conditions will become the new normal, especially in regions that are already dry like ours.

40 The Macquarie Valley is one of the worst-affected regions in this severe time of drought in New South Wales with current storage at critically low levels. Burrendong today is at 5.28 per cent. Inflows into Burrendong Dam have been extremely low. Since January 2018, they have been the lowest recorded inflows in history. Inflows into Burrendong Dam are 60 per cent lower than the previous
45 drought of record inflows. The Macquarie River is currently Stage 4 critical water storage. That's the highest level, on par with the Lower Darling.

For the first time since regulation of the river, the Macquarie will be turned off – it will cease to flow – at Warren Weir from the first day of next month in a few short weeks. If the current record low inflows continue, Water New South Wales will be in the unprecedented position of installing new infrastructure and pumping water from the dead water storage of Burrendong by February 2020 and the dam will be empty by May next year. Inland rivers are extremely reliant on low flows in dry times, when any water is very significant. The lack of protection of low flows in the Barwon-Darling system, for example, was found to be a significant contributing factor in catastrophic fish kills in the Lower Darling earlier this year.

10 Inflows into the Macquarie River from the Talbragar River are extremely important, providing water for critical human need, river health, wildlife survival, high security water needs, stock and domestic supplies to the mid and low sections of the Macquarie Valley, which include the internationally significant Ramsar-listed Macquarie Marshes. Inland Rivers Network objects to the application for the fourth modification of Ulan continued operations approved in 2010, Modification 4, because of the cumulative impacts on the Talbragar River and the New South Wales Murray-Darling porous rock groundwater source.

20 If approved, MOD 4 would increase base flow losses and extend the period of time of groundwater and surface flow recovery. Extensive assessment of this impact is required and it's found to be lacking within this proposal. The Triassic sandstone aquifers in the Talbragar catchment will be drawn down by up to an additional 50 metres due to Modification 4 by the end of underground mining. The impact of this drawdown on the surrounding landscape and water sources has not been adequately assessed. The Response to Submissions fails to address concerns about the drawdown that were raised by Inland Rivers Network.

30 Ulan MOD 4 Proposal predicts that, due to an additional area of depressurisation, an incremental base flow reduction of .003 megalitres a day can be expected for the Talbragar River. This is a predicted increase from .217 megalitres a day to .220 megalitres a day, or 80 megalitres a year, and no information is available on the length of time that these base flow losses will occur or continue after mining. There is a significant reduction of base flows for the Talbragar. This is a significant reduction of base flows for the Talbragar River in years of drought and we can expect more years of drought as the climate continues to dry and warm.

40 Mona Creek is an ephemeral tributary of the Talbragar River which would be undermined by the MOD 4 proposal. There's no consideration of subsidence from mining under the creek impacting on the alluvium and stored base flows after rainfall. Subsidence is predicted to increase ponding and change flow velocities in the creek. There's a predicted peak water take in 2022 from the New South Wales Murray-Darling porous rock groundwater source of 6629 megalitres a year. This is a very significant volume of water to take from this system.

45 The groundwater model does not include all sources of base flows. Therefore, the loss of alluvium and springs through subsidence impact is not included in the

predictions. There is no consideration given in this proposal to how groundwater sources are expected to recharge and recover after the life of this project. In conclusion, the Inland Rivers Network considers the impacts of Ulan Mine operations on river and groundwater systems of the Murray-Darling Basin are already excessive and unsustainable. The proposed expansion of Ulan Mine underground operations poses an unacceptable risk to the hydrology and ecology of the Talbragar River. We recommend this coal mine expansion be rejected.

MR KIRKBY: Thank you, Melissa. Our next speaker is Edward Finnie from the Upper Goulburn Water Users Association. Thank you.

DR E. FINNIE: Good morning, Commissioners. Good morning, Commissioners, ladies and gentlemen. First of all, I wish to acknowledge the traditional folk who belong to this land and the land under discussion today – the Wiradjuri People. My name is Ted Finnie. I'm a retired veterinarian. My wife and I have a 700-hectare beef cattle property at the junction of the Goulburn and Krui rivers, where we have lived for over 30 years. Thank you, Commissioners, for the opportunity to address you today. Our property has a 2.5-kilometre frontage to the Goulburn River, which we use for stock and domestic water and also for the large numbers of native fauna – mammals, birds, reptiles, amphibians – many of which are considered endangered.

We also have a licence to irrigate our river flat country. About 18 months ago the large property known as Coomealla, immediately downstream from our property on the Goulburn River, was sold to developers who have subsequently broken up the property into 26 separate allotments, all of which have been sold. Each of these allotments have basic stock and domestic water rights from the Goulburn River. These rights are an addition to those in existence for properties between O'Brien's Crossing and Ulan. The Upper Goulburn Water Users Association has been formed in response to apparent threats to the water rights of landholders along the Upper Goulburn.

As well as the irrigation licence for our property, there are several other properties with active irrigation licences. These water users on the Upper Goulburn are expressing concern about the ongoing expansion of the coalmining and its impacts on the headwaters of the river system and the long-term implications of loss of base flows, increased salt load and the volume of water intercepted across the three mining operations. In our initial submission of objection, we outline the key concern in regard to cumulative impact of Ulan coal modification 4. These concerns have not been addressed in the company's response to submissions report or the Department of Planning and Environment assessment report.

UGWUA disagrees with the conclusion of DPE that continuing to approve incremental increases in environmental impacts on water sources is sustainable, particularly in this period of climate change and decreased rainfall. The claim that modification 4 would not change the impacts on water sources to any extent greater than those approved for existing operations fails to recognise that these approved impacts are already too great. There is no equity in the system. It appears that the

principle of “might is right” is the only one to be adopted by these companies. The response to submissions fails to respond to a number of our objections that the 900 EC maximum level for mine water discharge from the Goulburn River is nearly twice the background level measured prior to mining development on the river.

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The assessment of environmental impacts on water sources from modification 4 does not measure salt load. This is a critical issue for downstream water users. The total loss of base flows to the river and increasing salt load has not been assessed. The Water Sharing plan for the Hunter Unregulated and Alluvial Water Sources 2009 does not allow for upstream trading of water licences. There is no disclosure or discussion of how or when the 600- megalitre surface water licence for the take at Ulan Mine was acquired. The long term loss of base flows, including through the open cut mining of the alluvial aquifer system adjacent to the river at Ulan Mine from 1982, has not been addressed.

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The duration of the loss of base flows is also not addressed. The response to submissions breaks the UGWUA submission down to three issues: cumulative impact assessment; discharge dependency of the Goulburn River; and impacts due to cessation of discharge. It completely fails, however, to deal with the key issue of the overall impact of mining on the Goulburn River and how that could be improved. The cumulative impact assessment provided at appendix of the response submissions does not address the key issues. This report concentrates on flows at the midriver gauge at Coggan. UGWUA members have properties upstream of the Coggan gauge.

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There is no river gauge between SWO2, immediately below Ulan Mine, and the Coggan gauge at 210006. That is 125 kilometres downstream from the mine. Appendix B highlights the problems with water measurement and management in the Goulburn River since largescale mining operations commenced at Ulan Mine in the early 1980s. The discontinuation of the gauge station 210046 above the mine at the village of Ulan in 1982 removed access to this important natural river flow data. A new gauge has been installed by Glencore at this old Ulan site in late 2018. The readings have not been made available to the public. I wonder why.

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Appendix B makes some use of low flow data collected from gauge 210046. Table 4.5 demonstrates that the river above the mine had less data flow records than the other downstream gauges. Appendix B, figure 4.1, flow duration curves also demonstrate that the top of the Goulburn River always had some flow. This is contrary to the argument in the report, based on flows at the Coggan gauge, that flow variability in the river is similar now to that shown in the past. That argument is completely squashed by the previous data. These arguments have also been developed to counter our concern that river flow below the mines is now dependent on releases from Ulan Mine.

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We highlighted the total loss of flow in late 2017 caused by the cessation of water releases. The cumulative loss of base flows and interception of surface water flows on the Ulan Mine site, plus the loss of base flows and surface flows as the Moolarben

and Wilpinjong mins, has not been assessed in relation to modification 4 or of any other mine approved in the upper river catchment. Any incremental increase in these losses is an additional impact on the river. Appendix B has not addressed this concern for water users above the Coggan gauge. The response to submissions
5 concentrates entirely on the model scale of loss of base flows from modification 4 being 0.001 megalitre per day.

However, this is not added to the daily loss of base flows from approved operations at Ulan, Moolarben or Wilpinjong Mines. The model predicts an increase in inflows
10 to the mine of 0.2 megalitres from modification 4, which brings the cumulative total to 27.9 megalitres per day at Ulan Mine alone. This equates to a loss of water from the landscape of over 10 gegalitres a year. This volume is twice the annual water usage of the entire Cudgegong Valley, including the wine grape industry, lucerne production and town water supply for Mudgee and Gulgong. As the response to
15 submissions states, the Goulburn River is not regulated by any dams for water supply – appendix B, page 18.

Water users on the river do not have a Windamere to regulate water use. What we now have are significantly large coal mine operations capturing base flows and
20 rainfall run-off on a scale much greater than the entire water use from the Cudgegong River. The only water users recognised in the assessment are private bore owners in the immediate vicinity of the mine drawdown. The lack of the consideration of the rights of downstream water users is a failure of the planning process. We consider that the loss of access to a significant volume of water and loss of river health should
25 be compensated by a clear set of rules that better manage mine water discharge into the Goulburn River.

UGWUA highlighted the need to reduce the accumulating salt load in the Goulburn River by decreasing the maximum level of EC in Ulan Mine discharge from 900 EC
30 down to 500 EC. The DPE report states that the EPA may change these limits over time under the provision of the Protection of the Environment Operations Act 1997. We urge commissioners to look more closely at the combined salt load entering the river from the Ulan and Wilpinjong Mines and the proposed modification 14 for Moolarben Mine, still under consideration. We request that the new consolidated
35 conditions from modification 4 include a reduction in discharge salinity levels to 500 EC. This would bring the approval in line with conditions for Wilpinjong Mine.

We also urge commissioners to consider our request to include rules for mine water discharge to more closely mimic the natural variability of river flow, including low
40 flows, to improve the health of the river system. Our initial submission requested that the discharge of large volumes of water from Ulan Mine should be regulated so that they mimic natural flow events and reflect background salinity levels. This is essential to restore variability into the river system to provide good water quality for downstream water users in times of low flow and compensate for the scale of flow
45 interception. We stand by this request because this is critical for landholders and water users living on the Goulburn River above the Coggan gauge.

We request that commissioners consider the inclusion of environmental flow rules for mine discharge water in the new consolidated conditions for modification 4. Ulan Coal Mine modification 4 provides for access to an additional 6.4 million tonnes of coal. This coal will ultimately generate a total of 16,093,298 tonnes of carbon dioxide equivalent greenhouse gases. This is made up of 27,535 tonnes of carbon dioxide equivalent in scope 1 gases, that is, generated in the mining process, 65,763 tonnes of carbon dioxide in scope 2 gases generated during transport, and 16 million tonnes of scope 3 gases generated during burning. Current research by the Scripps Institute shows that the Earth's atmosphere contains over 414 parts per million CO₂. This is far higher than any time in the past million years, and the increase in the last 12 months is the highest ever recorded worldwide.

Australia has approximately 1.5 per cent of the world's population, yet we produce three per cent of greenhouse gases, and this three per cent does not include the massive amounts of carbon dioxide produced from the coal shipped overseas, that is, scope 3 CO₂ equivalent, and it is not counted in Australia's contribution to the Paris Agreement. The climate scientists tell us that climate change is occurring at a faster rate than any of their models have predicted, and we now have less than 12 years to solve this problem. It's interesting that only this morning on ABC News, there was a report that the Canadian and Greenland permafrost is melting, and this is 70 years ahead of the predicted time for this to happen.

I personally am not concerned for my sake, but I am concerned about the inequitable burden our burning of coal will place on future generations. My children, my grandchildren, my great-grandchildren – they will have to bear this burden. I will not. We need to be placing less emphasis on the economy and more emphasis on the future wellbeing of our world. We can do this by transitioning away from coal into more sustainable employment in renewable energy, but we need to act quickly. In conclusion, we object to Ulan modification 4 and emphasise that we all need to work together to overcome the major problems ahead of us and we must forgo greed. Thank you for your attention.

MR KIRKBY: Thank you, Edward. Our next speaker is Derek Finter.

MR D. FINTER: Good morning, Commissioners. The Department of Planning and Environment's economic assessment of modification 4 does not meet the assessment guidelines required, nor do any of the previous assessments referred to in the modification 4 assessment documents. Ulan Coal currently has approval to mine 24 million tonnes of coal annually until 2033. This modification to allow an additional 6.4 million tonnes of coal has been assessed at generating royalties of \$39.5 million in undiscounted rather than present value terms. The export price for coal for Newcastle is now around US\$82 a tonne, which is \$16 lower than it was in January this year.

A rounding-up of the expected royalties to \$40 million in the department's report on page 32 is misleading. Therefore, the public benefit from this modification has not been correctly established. There has been no systemic costs benefits analysis done.

Costs such as the permanent loss of productive groundwater and the loss of associated agricultural production has been dismissed in the assessment. Worldwide opposition to fossil fuel development is growing daily. Glencore is faced with a billion dollar divestment by the Norwegian Government Pension Fund. Regular protests by concerned people, particularly by school-aged children, go louder, being heard even here in Mudgee on 24 May of this year.

The cost to the environment by adding the 16 million tonnes of carbon produced by this modification cannot be justified. It will not generate any new jobs or taxes or extend the life of the mine. There is no public benefit to be gained, and the modification must not be approved. Thank you.

MR KIRKBY: Thank you, Derek.

MR: Thank you.

MR KIRKBY: Our next speaker is Phyllis Setchell.

MS P. SETCHELL: Thank you. That's it. Thank you, Commissioners, for the opportunity to speak. We have a slideshow that's going to start soon. Today you've heard the scientific and reasoned evidence which underpins the community's concerns about the adverse water impacts on the Goulburn River and the Great Dripping Wall should this modification be approved.

MR KIRKBY: Phyllis, we might just – we're just trying to get the AV up.

MS SETCHELL: Yes. Yes. We're just waiting for the slides.

MR KIRKBY: Yes.

MS SETCHELL: No. Patience. Do you want my stick?

MR KIRKBY: We're just trying to convert them into another format, to see if they come up. For some reason the JPEGs aren't being read. What we might do is take a 10-minute break while we sort this out. And then we can reconvene.

ADJOURNED [12.01 pm]

RESUMED [12.03 pm]

MR KIRKBY: I think we're all set.

MS SETCHELL: Okay. Thank you very much. Today, you have heard the scientific evidence which underpins our community's concern about the adverse

water impacts on the Goulburn River and the Great Dripping Wall should this modification be approved. I want to invite you on a journey of exploration from a different aspect. As you view the slides, they will take you into the beauty of this special place. I will challenge you to imagine what the river walk and the Great Dripping Wall would be like without water.

Slide 1. We're looking at the first photo taken long before coal mining started. This shows the lush vegetation that existed at the drip back in the early 1900s. 2. We fast-forward to 2017 to discover the headwaters of the Goulburn River in a sorry state. There was no surface flow near the drip picnic area and just murky puddles left along the river walk. Distressed local families who had brought their children to play in the cooling waters, as they had done for generations, called Mudgee District Environment Group. 3. It was found that the Ulan Coal's desalination plant had broken down, therefore the water releases had stopped.

4. There was an outcry in the local media for Ulan to take immediate action. Some commented that it was the drought, not the mines, that had caused the river to dry up, yet even in the worst drought, it had never been so dry. From a local's perspective and long-term knowledge, this was not the natural state of the Goulburn River. 5. However, in Bobadeen Creek, downstream from the picnic area and just upstream from the Dripping Wall, water was plentiful and was flowing freely. The contrast between the two sections of the river showed clearly that we have now reached a stage where the headwaters of the Goulburn River are dependent on water from the mine.

6. Since then, the creek water has continued to flow all through the latest drought. The community is concerned that the extension of coal-mining activity will deplete this remaining resource. 7. Come sit with me and contemplate the risk. In 2014, the government promised nil impacts on the water at the drip from coal mining. The drip is not just the Great Dripping Wall, but also the Goulburn River, from the picnic area near the road all the way through to the wall, and if you walk downstream, there's the most glorious parts of the river to see. One part cannot be separated from the other. It needs to be seen as an entire ecosystem: trees, plants, animals.

Slide 8. People from our community, from Australia and, in fact, from all over the world visit the drip. In fact, I was there in the school holidays and the queue at the toilet was so long I didn't bother. I drove back into town. They leave with revived spirits. A dry river will deprive them of this experience. In today's stressful world, we all need these special places. 9. The drawdown on regional groundwater with this extension of mining by Ulan Coal Mine will impact on the water that feeds the damp, cool places along the river walk. Why take the risk of losing this?

10. Mosses and lichens will dry out and disappear. 11. All plants to survive need some water. These weeping grasses depend on the water as it seeps through the rock face. 12. This greenhood orchid found along the walk is already classified as vulnerable. Whoops. What happened to 12?

MR: You're one behind.

MS: They missed one, I think.

5 MR: Sorry.

MR: Next one. Yes.

MS SETCHELL: That's swell. Right. Okay. The next one, 13. The ivy-leaved
10 violet, a native forb, does well in moist conditions. No water; no native violets. 14.
People come to the drip to learn about its plants. Will they come if there is a barren
wasteland? 15. We all enjoy the antics of blue wrens. Will they be here if there's
no water? I doubt it. 16. This kingfisher is dependent on a healthy flow in the river
15 being maintained at all times. It is critical that the water releases happen in keeping
with environmental flow standards and that the salinity is kept at a minimal level.
17. My great grandson was fascinated by this lizard. 18. Even the black snake as a
place in the ecosystem. Reptiles need water.

19. We arrive at the lookout and then make our way along the Great Dripping Wall.
20 From the lookout, we get our first view of this amazing place. 20. The Great
Dripping Wall has a mysterious air. 21. It has been compared to a cathedral. 22.
The coastal wetland species and plants that grow on the Great Dripping Wall are
considered a groundwater-dependent ecosystem and highly at risk. 23. Water, even
in drought, constantly seeps through the wall. That's why it is affectionately named
25 by locals as The Drip.

24. It was thought that the water came from a perched aquifer but recent studies
have further confirmed that the source is groundwater and therefore will be adversely
affected by any increase in coal mining. 25. To maintain the water flow to the Great
30 Dripping Wall, Modification 4 must not go ahead. The government must keep its
promise of nil impacts on the water feeding the drip. Slide 26. Save the Drip for our
kids. These children and their mother made this banner because they have a long
family history of happy days at the Drip. They care about its future.

35 27. Children can't resist getting in the water. Imagine no water to play in. 28. The
water, as it flows over rocks, gives an endless delight of exploration. 29. Having fun
in the water is not limited to small children. No water; no fun. 30. Aboriginal
families have a deep connection to this sacred place. I would have loved to have
shared more with you from their perspective but, not being an Aboriginal person
40 myself, it isn't my place to do so. 31. Our community cares about the Drip. Even
some miners care as well. I would say the majority. No matter what age, it's worth
the walk to the Drip. 32. Many an hour is spent deep in conversation in quiet places
near the Drip. 33. A local Wiradjuri Elder sadly contemplating another loss. 34. A
mother and daughter write and draw to express their commitment to saving The Drip.
45 35. Over the years, there have been many community and family picnics, as well as
educational events. 36. I spoke to the Gulgong Pensioners at their invitation to tell
them about The Drip and was amazed at the intensity of their anger when I shared

with them the concerns and the impact of mining. They all wanted to jump immediately into action and write letters to protect this special place that has been an important part in their history.

5 27. 37, I mean. Despite the extreme summer heat, Mudgee District Environment
Group members happily shared with locals and visitors at the Mudgee Show their
concerns about The Drip. But the most impressive story in that photo is the young
teenager at the end, who went out there getting people to sign petitions and then later
went and did a survey at the high school and now is part of that young people's
10 movement. So impressive to see the younger people concerned. Our community
does really care. 39. Paddy singing up to save The Drip. 38. Sorry. That was 39.
The sign – no. Back to 39, sorry. The sign Protect Our Rivers has been used to
express our concerns for the plight of not only the Goulburn River but many others
under threat. Australia is a dry country. We must do all we can to protect our rivers,
15 including the Goulburn River.

40. At the Time to Choose rally, I came across this young Sydney student, not a
Mudgee resident, who had visited The Drip and was captivated by its beauty. It's not
just the local community but people far and wide who are passionate to save The
20 Drip. 41. Keep the Water Dripping. 42. Don't Let it Dry Up. Can we risk reaching
the tipping point, and when the Goulburn River, the Great Dripping Wall and the
interdependent ecosystems are destroyed by lack of water? Please don't approve this
modification.

25 MR KIRKBY: Thank you, Phyllis. Our final speaker is Geoffrey Miell. Thank
you.

MR G. MIELL: I thank the Independent Planning Commission New South Wales
IPCM members for the opportunity to speak here today. My name is Geoff Miell. I
30 have no political affiliations. Next slide, please. Last week, BP released its 68th
annual edition of the BP Statistical Review of World Energy. Launching this
comprehensive collection and analysis of global energy data was Bob Dudley, BP
group chief economist, who said:

35 *The longer carbon emissions continue to rise, the harder and more costly will
be the necessary eventual adjustment to net zero carbon emissions. There is a
growing mismatch between societal demands for action on climate change and
the actual pace of progress, with energy demand and carbon emissions
growing at their fastest rate for years. This world is on an unsustainable path.*

40 This presentation today highlights recent compelling evidence of the growing risks to
our energy security and prosperity and why the Ulan Coal MOD 4 is highly likely to
be a stranded asset. I oppose the Ulan Coal Mine MOD 4. I strongly urge you to do
so too. Next slide, please. Global oil production and consumption in 2008 continued
45 to increase. Production growth was heavily concentrated in the US, with 2.2 million
barrels per day growth, Canada .41 and Saudi Arabia .39, offset by significant
declines from Venezuela, negative .58, and Iran, negative .31. Next slide, please.

In 2017, USA was the world's largest oil producer; yet it's estimated that USA has approved reserves-to-production of only 11 years. The Russian Federation was the world's third largest oil producer. And it has an RP estimated at only 25.4 years. This suggests global oil production is unlikely to be sustainable at current rates for much longer. Global oil prices are likely to continue to rise. Some energy analysts suggest crude oil prices could exceed US\$100 per barrel soon. Rising petroleum fuel costs will increase production and transport costs of coal. Next slide, please.

For roughly the last 10 years, all US oil production growth has come from shale oil, as indicated by this graph. Despite EIA predictions for further US shale oil production growth, the Norwegian consultancy Rystad Engineering has calculated that only 10 per cent of US shale oil companies are cashflow positive. Next slide, please. US shale oil is light oil, not easily converted to diesel, which is the most important transportation fuel nowadays. It's also ill-suited for producing jet fuel and the higher-octane grades of gasoline or petrol unless extensively blended with heavy crude oils. Additionally, there's a dearth of heavy oil, the fuel of choice for marine vessels. So US shale oil production growth is beginning to create headaches for US refineries, leading to diesel fuel becoming scarcer and more expensive. Next slide, please.

Have global diesel fuel supplies peaked: perhaps it's too early to tell yet. Rather than waiting for declining global oil supplies being forced upon us, humanity needs to leave oil before oil leaves us. Scarcer and costlier diesel fuel supplies will likely increase Ulan's coal mining and transportation costs. Next slide, please. In 2018, global gas production and consumption registered record high volumes, as indicated here. Next slide, please. But is further global gas production growth sustainable. Global gas prices are likely to rise higher as US unconventional – ie, shale and CSG – gas productions peak then begin sustained declines. Australia's rising gas production now ranked world seventh largest is also not sustainable, with a reported diminishing reserves to production of 18.4 years at the end of 2018. Next slide, please.

Australia is now on track to export more than 80 million tonnes per year of LNG, surpassing Qatar as the largest global producer. But can it last for long? Next slide, please. In 2018, global coal production increased by 4.3 per cent, significantly above the 10 year average. Production growth was concentrated in Asia Pacific, 163 million tonnes oil equivalent, with China accounting for half of growth and Indonesia production up by 51 million tonnes oil equivalent. Global coal consumption increased by 1.4 per cent in 2018, the fastest growth since 2013. Growth was driven by Asia Pacific, 71 MTOE, and particularly by India, 36 MTOE. Next slide, please. This table indicates how heavily concentrated the global coal industry is. China produced almost half the world's coal in 2018, yet its estimated RP at the end of 2018 is only 38 years, clearly not sustainable. Indonesian and Indian coal production surpassed Australia's production in 2018. Next slide, please.

The bar chart indicates planned coal power capacity pre-construction status shrank from 1069 gigawatts in 2015 to 339 gigawatts, with the biggest falls in China and

India. Japan has cancelled over seven gigawatts of proposed coal capacity since 2017, while South Korea has stopped issuing permits for new coal plants. In 2018, Japan brought around 39 per cent of Australian mine thermal coal exports; China acquired 21 per cent; South Korea at 15 per cent; Taiwan at 11 per cent; and India at two per cent. Next slide, please. This chart indicates coal power capacity additions above the zero line and retirements below the zero line as coloured columns between years 2000 and 2018, and global net change the black line. New net coal power was 19 gigawatts in 2018, the slowest rate of growth on record and the fourth straight year of decline. If trends continue, the global coal power fleet will begin to shrink, perhaps by next year, meaning global demand is likely to then decline with it. Next slide, please.

This chart indicates how Lazard has tracked unsubsidised, levelised cost of energy analysis, showing significant historical cost declines for utility scale alternative energy generation technologies. Next slide, please. This chart shows how long it takes to deploy a range of different types of electricity supply technologies. As you can see, renewables can be deployed substantially quicker than coal and nuclear. Next slide, please. Climate change is an existential threat to humanity. Current pledges are not on track to limit global warming to 1.5 C above pre-industrial levels. Approving the Ulan Coal Mine MOD 4 contributes to increasing an existential risk to humanity. Why risk our families' futures, our lives. If Australia does nothing to reduce emissions, why should anyone else do anything. The IPCM has a fiduciary duty to protect New South Wales citizens. Next slide, please. A forward to a policy paper published last month that was written by retired Admiral Chris Barrie, who was chief of the ADF from 1998 to 2002, stating:

David Spratt and Ian Dunlop have laid bare the unvarnished truth about the desperate situation humans and our planet are in, painting a disturbing picture of the real possibility that human life on earth may be on the way to extinction in the most horrible way. Without immediate, drastic action, our prospects are poor.

What is retired Admiral Chris Barrie referring to? Next slide, please. David Spratt and Ian Dunlop have compiled a policy paper that outlines a scenario based on the latest climate change science, where global human caused greenhouse gas emissions don't peak until 2030 and are projected the possibilities are what could be experienced by 2050. This slide here outlines some of the key points given in the scenario. And I will add:

This scenario provides a glimpse into a world of outright chaos on a path to the end of human civilisation and modern society as we have known it, which the challenges to global security are simply overwhelming, and political panic becomes the norm.

Do you have children or grandchildren? Do you wish to play Russian roulette with their futures by approving the Ulan Coal Mine MOD 4. Humanity needs to stop burning fossil fuels. This is as good a place as any to begin doing so. Next slide,

please. The energy transition is not a question of technical feasibility or economic viability, but one of political will. Repeating what I stated at my presentation at the IPCM public meeting for the Bylong Coal Project determination last November, new thinking is required that is informed by evidence, science and economics. And it
5 requires urgent, effective action akin to wartime, to reduce the risk of human extinction within this century.

The Independent Planning Commission New South Wales has a fiduciary duty to protect New South Wales citizens. The proposed Ulan Coal Mine MOD 4 is highly
10 unlikely to remain viable with the emerging realities and challenges highlighted here in my presentation. I strongly urge the IPCM to stop this project before more damage is done. Please don't ignore the existential risks. This project contributes towards dangerous climate change. Thank you for your attention.

15 MR KIRKBY: Thank you, Geoffrey. That concludes the public meeting. I would like to thank everybody for coming along today and particularly the speakers for contributing today. We will be going out and having a look at the site this afternoon. And we will obviously take on board everything that has been said and everything
20 that has been given to us in written submissions as part of our deliberations. Once again, thank you very much.

MEETING CONCLUDED

[12.30 pm]