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INDEPENDENT PLANNING COMMISSION

MEETING WITH DPIE

RE: BYLONG COAL PROJECT

PANEL:	**GORDON KIRKBY** **WENDY LEWIN** **STEVE O'CONNOR**
ASSISTING PANEL:	**ANNA SUMMERHAYES** **BRAD JAMES**
DEPARTMENT OF PLANNING, INDUSTRY AND ENVIRONMENT:	**MIKE YOUNG** **STEPHEN O'DONOGHUE** **CHRISTINE TUMNEY** **HELEN SQUIRES** **JOHN FRIEND**
LOCATION:	**IPC OFFICES** **LEVEL 3, 201 ELIZABETH STREET** **SYDNEY, NEW SOUTH WALES**
DATE:	**12.10 PM, TUESDAY, 6 AUGUST 2019**

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MR G. KIRKBY: I just have a short intro I read and then we'll get into it ..... Okay. Good. Good. Um, good afternoon and welcome. Ah, before we begin, I would like to acknowledge the traditional owners of the land in which we meet and pay my respects to their elders past and present. Ah, welcome to the meeting today. KEPCO Bylong Australia Proprietary Limited, the applicant, is proposing to develop the Bylong Coal Project, an open cut and underground thermal coal mine near Mudgee, New South Wales in the Mid-Western Regional Council of New South Wales.

My name is Gordon Kirkby. I'm the chair of this IPC panel. Joining me are Wendy Lewin and Steve O'Connor. The other attendees at the meeting are Anna Summerhayes and Brad James from the IPC secretariat and Mike Young, Steve O'Donoghue, Christine Tumney, Helen Squires and John Friend, representing the Department of Planning, Industry and Environment. Ah, in the interest of openness and transparency and to ensure the full capture of information, today's meeting is being recorded and a full transcript will be produced and made available on the Commission's website. The meeting is one part of the Commission's decision-making process and will form one of several sources of information upon which the Commission will base its decision.

It's important for the commissioners to ask questions of attendees and to clarify issues whenever we consider it appropriate. If you're asked a question and are not in a position to answer, pe – please feel free to take the question upon notice and provide any additional information in writing, which we would then put on our website. Ah, it should be noted that a number of questions, ah, were submitted to the Department in writing prior to today's meeting. These written questions have been published on the Commission's website. Ah, we will now begin. Okay. I might – just for the purpose of the transcript – if everyone can introduce themselves, please.

MS H. SQUIRES: Sure. Ah, my name's Helen Squires and I'm an agricultural energies planner with the Department of Primary Industries.

MR J. FRIEND: Ah, my name's John Friend. Um, ah, I'm a – a – a – a soils, ah, research supervisor with the Department of Primary Industries.

MS C. TUMNEY: I'm Christine Tumney, the director of strategic programs with Department of Primary Industries.

MR M. YOUNG: Um, Mike Young. I'm executive director, energy and resources in, ah, the Division of Planning and Assessments within the Department of Planning, Industry and Environment.

MR S. O'DONOGHUE: Ah, Steve O'Donoghue. Ah, director of resource assessments within the Department of Planning, Industry and Environment.

MR KIRKBY: Okay. Thank you. Um, today's meeting really is to focus on, um, biophysical strategic agricultural land. Um, just, sort of, going through the – the

questions we've, sort of, asked – I guess, firstly, um, it would be good if, ah, somebody could just give us, sort of, the re – the relevant legislative and policy frameworks that – that actually apply to BSAL.

MR YOUNG: Um - - -

MR KIRKBY: That would be great.

MR YOUNG: Sure, Gor – Gordon. I – I – um, I – I'll take the opportunity to do that first. Um, I know there's a number of technical questions that, um - - -

MR KIRKBY: Yeah.

MR YOUNG: - - - obviously, ah, my colleagues, ah, in agriculture will be keen to answer, but from a policy/le – legislative framework, BSAL, in many ways, is, um, ah, being, I guess, given effect through the planning, um, legislation – associated policies and, ah, it was really, ah, ah, something that came out of concerns a – a number of years ago about, um, increasing impacts of extractive industry projects – mining and so forth – on, ah, important or high-quality agricultural land and, ah, at that time, ah, mapping was undertaken to identify, ah, the biophysical strategic agricultural land across the state in accordance with criteria that had been developed at the time.

That was then given effect, ah, through the strategic regional land use policies and, ah, various mechanisms were set up at that time to ensure that BSAL was both identified, ah, in the development assessment process and also certain matters were, um, stipulated in various policies about, ah, things that ought to be considered, um, by a consent authority in determining an application for a mining project.

So, for example, ah, out of that policy came the establishment of the gateway panel, ah, which was designed to, ah, ensure that matters associated with, um, ah, biophysical strategic agricultural land and critical industry clusters were considered , ah, upfront, ah, and that new mining proposals needed a gateway certificate to accompany any development application, and in the case of Bylong, um, that's what – what occurred. Ah, there was also a – a range of other plans and – and setbacks, exclusion zone for coal seam gas and so forth, though that's not, ah, so relevant to, ah, this application.

MR KIRKBY: Yep.

MR YOUNG: Ah, the other aspect was that a protocol was established, which was really a, um, a soil verification, ah, protocol, ah, which was developed, um, with agriculture and, ah, the soil scientists within OEH, ah, and the interim protocol for site verification and mapping of BSAL – of land was published, and that really steps out the, sort of, I guess, scientific criteria, um, about, ah – that, ah, need to be applied to consider whether certain soil meets, ah – or can be considered to be BSAL. So, really, it was a policy framework to ensure that BSAL was both identified and

considered upfront, ah, and then through the process of, um, assessing the – the relative merits and impacts of, ah – of projects like the Bylong coal project.

Um, through the legislation as well, there's, um, various requirements, um, under the EP&A Act and also the – the Mining SEPP, which outlines the, ah – the process, um, for which gateway certificates and site verification certificates need to be, um, considered and – and issued, um, and, ah, I – I mean, I don't propose to go into that now, but, you know, that's all set out, um, ah, within those policy frameworks, ah, but, I think, the – the – the key thing, I guess, I want to say in terms of the policy – policy and legislative framework is that, ah, whilst BSA – and I'm sure my colleagues in – in agriculture will, um, discuss this further, but BSAL – whilst it's being – there is a process for it to be identified, there's no requirement in the, ah, planning legislative for, ah, all impacts on BSAL to be avoided, um, or that projects that impact BSAL be, ah, refused or – or significantly amended to – to avoid BSAL.

That being said, in the case of the Bylong coal project, um, the – the BSAL mapping that was undertaken in the valley, um, at the state level, um, identified a certain, ah, area of BSAL. The company then went through further, ah, soil testing and, ah, through that soil testing, identified, actually, there was more BSAL in the valley than was actually mapped in the state mapping, I think, some 400 hectares, ah, and – so really the – the – the way that the policy framework has been setup is that, ah, ah, BSAL's a relevant matter for consideration and it's really the identification of it as a trigger for further detailed assessment, um, particularly in regard to, ah, potential impacts on soils and, obviously, the, ah, potential impacts on agriculture, um, upon which, you know, ah – as – as that relies on having good quality soils, and – so, ultimately, it's – it's a matter for the IPC as the consent authority for this project to determine, you know, the nature and extent of those impacts and acceptability of those impacts on BSAL for the Bylong coal project. So there's a lot of detail in – in – ah, obviously, in that policy and legislative framework, but, I mean, those are the – the – the fundamental aspects.

MR KIRKBY: Okay. Thanks, Mike. Ah, that's a good context. Um, obviously, um, as you said, it is a matter for our consideration and a big part, I guess, of the, um – the mitigation for the 400 – approximately 400 hectares that the, ah, revised project is – is looking to remove as part of the open cut components – you know, they're relying a lot on, I guess, putting forward a rehabilitation strategy to restore what they're referring to as BSAL equivalent - - -

MR YOUNG: Yep.

MR KIRKBY: - - - land and, I guess, that's one of the key issues for the – for the panel – is, I guess, the ability to do that, because it's a key mitigation strategy and it's very key to our assessment as to the – how acceptable, ah, the removal of this BSAL is and it – so, I guess, flowing into the – the, sort of, next question is – is how satisfied, I guess, um, DPI Agriculture are, on the basis of the information provided, that that BSAL equivalent can be achieved, um, in this context.

Um, going back to, I guess, submissions that have been prepared as part of the process, um, we've had, sort of, DPI have – have, sort of, said, "We're willing to consider that if reinstated, ah, land can be brought back to the fertility and productivity standards in both dry land and irrigated scenarios with all of the soil constrains contained within the interim protocol eliminated, then this could suffice." I guess that's saying if it can, I guess, our question is what is their view on whether it can, ah, and I'm not sure who - - -

MR YOUNG: I might just kick off, but then hand over to Christine and – and – and others. I guess, for – the reality, I guess, with – with this situation is that the I – the – the – the former Planning Assessment Commission considered this precise issue for the Watermark coal project a number of years ago, where I think something like 96 hectares was proposed to be – or was to be impacted and the company was proposing to put back, I think, a considerable area larger than was actually gonna be impacted, so the Planning Assessment Commission considered that exactly the same issue at that time.

Um, certain investigations and research was undertaken and the bottom line is that, um, certainly from the planning perspective, we have no, ah, particular examples of mining projects that have been able to, ah, restore BSAL, simply because that hasn't been a requirement and BSAL's only been, ah, ah, a feature of the planning system of a certain number of years. That being said, there are other examples I'm sure Christine will, maybe, touch on of – of rehabilitation of agricultural land more generally, ah, after mining, um, but there's no actual examples in New South Wales of restoration of BSAL other than to say that the Shenhua Watermark project has conditions on it of – requiring it to establish, um, ah, BSAL equivalent land within the disturbance footprint.

The other thing is – I'd say is that, um, ah, throughout this process, ah, obviously, ah, um, DPI Agriculture's been, ah, consulted throughout this process and provided a number of submissions – raised a number of issues about the ability to achieve BSAL and – and some of the challenges associated with that and the company, KEPCO, ah, has provided detailed responses, including a full rehabilitation plan, um, including completion criteria, etcetera, that are consistent with the proto – the, ah, the BSAL protocol. So, um, just – I just think that it's important to have that context – that this is a) not a new issue, ah, but b) there's, um – it's hard to put your finger on something, um, when there's been no opportunity for the mining industry to actually demonstrate that, but I'll pass over Christine to be more specific about those matters.

MS TUMNEY: Mmm. Thanks, Mike. Um, thanks, Gordon.

MR KIRKBY: Thanks, Christine.

MS TUMNEY: Um, so, yes, look, I would agree with, um, what Mike's just stated in relation to that. I – I also would say that what – DPI has undertaken an analysis in the first part of the question, um, with regard to the recommended completion criteria for rehabilitation. Um, from our point of view, the – the concerns that were raised in

the early submissions have been address. Um, however, we still have a couple of key points that we'd like to raise and that is that, um, the final development of the rehabilitation management plan, ah, DPI would like to have, um, close consultation in relation to the finalisation of that plan, and that's, of course, including the, um – the criteria, the monitoring programs and the research trials that are part of that.

We feel that it's really important, um, that those activities commence quite early on in the stages of the mine, so that we can see, um, what sort of, um, activities are causing what sort of issues and the monitoring, um, will actually be able to demonstrate what levels of, um, changes are happening to the soil and what we may be able to assist with – providing advice on insuring that the BSAL is going to be maintained. So that's – that's a process that we'd like to be involved in. Um, I guess, in relation to the soil sites, I'll hand over to, um, John – if you'd like to anything further.

MR FRIEND: So I – I guess, um, when – when looking for examples of whether this can be done, um, as Mike said, the – the – the New South Wales examples that have been put forward, um, aren't complete restoration, ah, back to BSAL. However, we have had a – a look around at – at what can be done and – and I think, um, the United States can be used as an example. Um, they introduced the Surface Mining, ah, Reclamation and Control Act, ah, in 1977 and that legislated that, ah, any agricultural land had to be restored back to its, um, original quality, so they've had, um, a number of examples there of prime agricultural land having been restored. So in – in regard to whether it's possible, it's not theoretical. It – it – it has been done before and – and – and – and up – up to that stage. Um, the problem - - -

MR KIRKBY: Are we looking at apples with apples here? I mean, obviously, we're talking about the US as opposed to the Bylong valley. How similar are we talking here in terms of the - - -

MR FRIEND: So, yeah, look, a, a, a good question. And, and, um, my understanding over in the United States is that it's been done on quite a range of, of different soil types, um, so I would expect that that should be able to be done, you know? The, um, um, Bylong KEPCO have identified their soil resource, um, and, and, and the soil resources there. I, I would be, you know, confident that, that if they applied those same principles that, that the United States has, that, that would be, ah, possible. I guess another point would be that the, ah, commitment is, ah, not just back to BSAL, but back to BSAL and, ah, land and soil capability class three, um, which do have different, um, ah, different qualities.

And land and soil capability class three, ah, is an honest, um, ah, cropping soil that, that can be, can be continuously cropped, um, so, so that can be ..... um, I guess one of the things that we would be concerned with, ah, is if, um, ah, if Bylong KEPCO went away and then we have to come back and assess, um, ah, the – these BSAL soils in 20 years time. There needs to be some sort of progressive rehabilitation and progressive monitoring of, of how that's going so, um, a fairly good project management, ah, to identify that they are still heading into the right direction.

MR YOUNG: Would it be fair to say, John, that, um – two things on that point and just sort of rounding out that – sort of the ability or the, the current regulatory arrangements about monitoring and so forth and about this project in particular – that because of the impacts of the open cut component happened fairly early in the mine life, ah, then followed, potentially, by the underground operations for another 15 to – years or, or so, plus – and then a certain amount of time before a mining bond – rehabilitation bond would have to be relinquished – that, compared to maybe some other projects – that there is a, a reasonable tale there, so to speak, of, um, ah, not just working in the early stage to recreate the BSAL equivalent, but then to be able to monitor that over time. Is that - - -

MR FRIEND: That – that's a very good point, Mike. And that – and so the, the open cut mine, I think, will finish in, in the first eight years of, of production. And, and then that BSAL will, will be, um, ah, rehabilitated, ah, or restored. Um, it'll take time, ah, to progress that from when all the dirt is mowed down, ah, to actually getting it to that quality and, and having that 15 to 20 year timeframe. Ah - - -

MR O'CONNOR: I – is that actually what's proposed, though? 'Cause I thought - - -

MR KIRKBY: They're using it for water management.

MR O'CONNOR: Yeah, they're using the pits for water management purposes so you wouldn't be able to get in and rehab at an early stage, like you're just suggesting - - -

MR O'DONOGHUE: It's, ah - - -

MR O'CONNOR: - - - would be desirable.

MR O'DONOGHUE: I thought – most of the area is – there's the – there is the, ah, one – the final void, um, that will be used for water management. Um, but it – it's a smaller percentage of the whole site. Most of the – when you look at the waste and placement areas, the, ah, the, you know, the western open cut and the eastern open cut. Most of that area will be, you know, rehabilitated with the, with the, with the smaller area just left open for that, for that water management and also stor – storage of, um, ah, the reject material as well. So there will be a component that is – that is left over, but, but the majority of the site will be, be rehabilitated.

MS SQUIRES: Yeah.

MR FRIEND: Progressive.

MS SQUIRES: That's, yeah, progressive rehabilitation.

MR O'DONOGHUE: Yeah.

MR FRIEND: Just noting that the rehabilitation for BSAL will be significantly more resource heavy than typical rehabilitation so it's just acknowledging that that's a, a workload that's upfront, that would have to be taken as part of the project and - - -

MR YOUNG: Mmm, yep.

MR KIRKBY: I guess just a question.

MR YOUNG: Mmm.

MR KIRKBY: How does that work into the bonds system?

MS SQUIRES: Mmm, that's where - - -

MR YOUNG: Which is exactly where I was going, Gordon.

MS SQUIRES: Mmm, yep.

MR YOUNG: Thank you. Um, so, look, ah, and I think we've had similar discussions about how does the bond cover, like, ecological offsets and so forth as well. Although, that's less relevant for this project than for other projects. And, ah, I – the statements we've had from the resource regulator, ah, that the bond is set, ah, at the level, ah, that ensures that the total cost of rehabilitation in accordance with the planning approval is met. Now, it's not like you set it at day one and then set and forget. It's – it is progressively reviewed, um, which both looks forward and backwards in terms of the performance of the rehabilitation and what would be required for the government to step in to address those matters.

That being said, I do think that, um, the resource regulator – I think we might've mentioned this on another project – is seeking to set up a, a, ah, in – interdisciplinary committee to review, ah, a bond. Um, which would include, ah, not only, I guess, the mining, ah, technical, ah, stability of the landform which, I guess, is fundamental, but also would seek to ensure that the rehabilitation bond was appropriately covering other obligations under a planning approval, such as, um, restoring, ah, agricultural productivity and/or, um, ecological outcomes where that's relevant. So that process is underway now.

MR KIRKBY: Would that apply? I – what's the timing of that?

MR YOUNG: That – the committee - - -

MS SQUIRES: Mmm.

MR YOUNG: - - - will be, ah, commencing in the next couple of months.

MR KIRKBY: Okay. Um, just going back a bit. You referred to some analysis that's been undertaken. Has that been brought forward to the Commission as part of submissions? I'm just – you referred earlier that you'd done analysis and you're satisfied, um, that - - -

MS TUMNEY: Oh - - -

MR KIRKBY: - - - your concerns have been addressed. Um - - -

MS TUMNEY: Ah - - -

MR KIRKBY: - - - is that documented in – anywhere?

MS TUMNEY: That was in reference to have we analysed the project with regard to the recommended completion criteria. So that was in review of the, um, consent conditions and the responses, um, that we'd received in relation to our earlier questions.

MR KIRKBY: Okay. We just need to verify that we have that information.

MR FRIEND: Cool.

MR KIRKBY: Thanks.

MR YOUNG: So I think on the, ah, completion criteria, um, ah, ah, KEPCO, in its responses, provided the detailed draft rehabilitation management plan, which - - -

MR KIRKBY: Yep.

MR YOUNG: - - - included very detailed, um, completion criteria. And I, I guess the point I'd make there, Gordon, is that those completion criteria are twofold. One is about BSAL equivalent. One is about, um, land capability class three. Um, and, ah, in regard to the completion criteria for BSAL, those, those, essentially, reflect, ah, what's in the protocol so, in other words, what, what does BSAL comprise? Well, those are the things we need to meet in the completion criteria. So what KEPCO is proposing is really merely reflecting back what - - -

MR KIRKBY: But - - -

MR YOUNG: - - - the government has asked to achieve.

MR KIRKBY: - - - they have, um, they have said they can't ..... because it's a – basically, a manmade soil, they can't ..... the - - -

MR YOUNG: Apart from that technical issue that it's in the – that's why it's called BSAL equivalent.

MS SQUIRES: Yes.

MR YOUNG: Yes.

MR FRIEND: So, so the, um, the, the BSAL verification and interim verification guidelines, um, specify, um, various soil types, ah, as being inherently fertile in, in, in various classes. Um, the, the manmade soils, um, or anthroposols - - -

MS SQUIRES: Mmm.

MR YOUNG: - - - ah, are not there. And they specifically state that the reason that they're not is because they're so variable. Ah, so an anthroposol can be, you know, a, an, an awful, ah, you know, dump of, of boring rocks - - -

MR KIRKBY: Mmhmm.

MR YOUNG: - - - um, ranging up to, um, probably the most productive horticultural soils, um, ah, that are around, from an agricultural perspective. And because of that, they said that they couldn't actually include anthroposols. Um, however, um, I, I think we should be able to develop some, ah, soil fertility guidelines to get, get in a good ..... soil fertility.

MR KIRKBY: Okay. Um, I think you've touched on this already, but, um, just a question around the rehabilitation examples that were put forward by the applicant. Um, obviously, um, we're looking at four – approximately 400 hectares to be rehabilitated. Um, what's your, what's your view on the examples that have been provided by the applicant? And you have a – already, I guess, partly answered it with reference to some examples in the US.

MR FRIEND: So, um, and, and I think we've also, um, mentioned that, that the, the New South Wales examples, ah, ah, they have put forward, um, have not, ah, have not yet brought that soil up, up to, ah, a BSAL or, or prime agricultural land standard. Um, but, um, that's not saying that they can't and it won't, but it hasn't happened yet.

MS SQUIRES: And some of the examples are, are more grazing trials.

MR KIRKBY: Yep.

MS TUMNEY: Mmm.

MS SQUIRES: So, um, again, it's just coming back into the alluvial, um, lands projects following up, um, and doing some extra work. And that's why it's important to have the progressive criteria in there as well, not just the completion - - -

MS TUMNEY: Mmhmm.

MS SQUIRES: - - - criteria. But - - -

MR KIRKBY: Okay. I think that's ..... um, just on that – obviously, in the, in the local area, I think we're – with the revised project, it's about 12.9 per cent of the BSAL that have been mapped in the Bylong Valley would be impacted on this. Do you – does the, ah, DPI have any sort of view on, um, what might be an acceptable loss of BSAL as their – within a particular area?

MS TUMNEY: Well, really, um, from DPI's perspective, um, we recognise the importance of BSAL and, and the New South Wales government does, with the establishment of the gateway process. Um, and I think that's – that provides that rigorous planning process for considering the impacts and BSAL on the prime ag land. Um, and I guess, from our perspective, we're always looking to avoid, where possible, any impacts on the BSAL. But where avoidance is not possible, well, then it's looking at, um, mitigating and rehabilitating.

MR KIRKBY: Okay.

MR YOUNG: I would just add to that, um, Gordon, in terms of the, um, ah – whilst it may be 13 per cent of the BSAL may be affected by the project in the valley, um, in one form or another, I think, ah, a big – relatively large proportion of that will be actually not physically disturbed. It'll be within the offsets that are – and those offsets are primarily extant woodland at the moment so they're not areas that, I guess, are, are able to be cropped or, you know, um, intensively farmed at this stage anyway. So it's, it's more – I think in terms of actual loss from, um, disturbance within the mine footprint, I think it's more like seven and a half per cent of the BSAL within that area. Is that – I think that's correct.

MR O'DONOGHUE: That's right, yep.

MR YOUNG: Yep.

MR KIRKBY: Is that correct?

MS SQUIRES: Yep, so 400 will be disturbed and I think 200 - - -

MR YOUNG: Yeah.

MS SQUIRES: - - - the remaining 200 will be - - -

MR KIRKBY: Go into woodland, but - - -

MS SQUIRES: Off – yeah.

MR YOUNG: Yeah.

MS SQUIRES: Which is, yeah, currently used for grazing.

MR KIRKBY: Um, one of the things – obviously, in the protocol, um, there's a minimum rainfall criteria. Um, when, um, when looking at, I guess, BSAL – obviously, we've got, ah, alluvial aquifer systems in the Bylong Valley. Um, are they looked at as part of the mapping or is it just a straight, "Well, there's a minimum rainfall so I guess it, it ticks the BSAL box"? But is there any consideration given to the fact that there are also groundwater – there's also groundwater in this area. And I guess where we're getting at – does that factor into the importance and are there almost different levels of BSAL in terms of - - -

MS SQUIRES: Mmm.

MR KIRKBY: - - - this has got the minimum rainfall but it also has an aquifer system.

MS SQUIRES: Yeah.

MR FRIEND: Yeah, look, ah, the answer is, ah, fairly simply no. So it – it's – it ticks the box. Um, I guess we regard BSAL – it's, it's a – as the most fertile three and a half per cent of, of soils in, in New South Wales and, so there's not – you know, we're, we're not subdividing that BSAL at all. Um, in, ah, in the case of Bylong, which has an average rainfall of around 600 mils, it, it ticks that dry land box and – so it's, it's BSAL soil, yep ..... we don't - - -

MR KIRKBY: So it doesn't factor in. So, because one of the things is, obviously, with, ah, the mine there, there's impacts on the groundwater. And they've been modelled and ..... thing and then there's, obviously, a, a recovery period at the end. And, um, whether that's factored into, I guess, the BSAL equivalent, given that groundwater resource is going to take – I think it's up to 100 years or a hundred and whatever years to .....

MR FRIEND: I – Gordon, I think it's important to distinguish between different aquifers and the contribution they have to, ah, shallow profile soils and so forth. So maybe Steve could - - -

MR O'DONOGHUE: I – yeah.

MR FRIEND: - - - touch on that.

MR O'DONOGHUE: That's what – just on, on that, I guess the, like, the, the predominant water source used for agriculture in the Bylong Valley is the - - -

MR KIRKBY: Mmhmm.

MR O'DONOGHUE: - - - is the alluvial aquifer. Um, the, the depressurisation from the, the underground open cut mining, you know, based on the predicted modelling which has gone through a pretty - - -

MR KIRKBY: Yep.

MR O'DONOGHUE: - - - thorough review, um, ah, is only indicating that's a small component of the drawdown that's, that's in the alluvial aquifer. A maximum of nought point five metres in a small area. Um, a median of nought point two for all, all, all the modelling runs. The, the, um, and that's from the induced effect, you know, from the Permian, depressurisation of the Permian aquifer and the ..... the, the alluvial. The, the predominant, ah, drawdown is really associated with the, the, the bore field pumping itself, um, which is used for, you know, mine water supply.

MR KIRKBY: Mmhmm.

MR O'DONOGHUE: Predominantly during the open cut period, you know, for, for dust suppression, ah, in particular.

MS SQUIRES: .....

MR O'DONOGHUE: And, and also – but also factored into that is, is, is agricultural water use, um, you know? Going, going for agricultural ..... ah, production on KEPCO's properties. So once the, the – the water balance is showing once the, the open cut ceases after about that, you know, eight year period, um, the – and there's water coming from underground mining – the, the demand – consumptive demand on, on the alluvial aquifer reduces and, and you, you won't be having that, um, drawdown as a result of that. The, the bore field, ah, impacts on that water, you know, that, that, that was targeted for mine, um, the mining project, you can - - -

MR KIRKBY: Mmhmm.

MR O'DONOGHUE: - - - you know, return the, return to agricultural – ah, for uses – for agricultural uses .....

MR YOUNG: Would it be fair to say, also, that the disturbance footprint in terms of where the open cut's located, etcetera, has specifically avoided those alluvial lands. So you're not actually disturbing soils that are particularly reliant on those alluvial connectivity.

MR O'DONOGHUE: That's what I mean. Part – I mean, part of the Aquifer Interference Policy, too, is avoiding these buffers from alluvial, um, aquifers. So there, there is a commitment and a setback of 150 metres, you know, from the open cut pit, you know, from the alluvial aquifers, where the – you could, you could argue that there's more productive, you know, soils and agriculture through there because of the, you know, connection with the, the alluvial aquifer. So that, that, so that's an important point, in terms of that.

MR KIRKBY: So whilst, whilst, whilst obviously BSAL and restoring BSAL are some sort of productive use, we'll rely on both rainfall and potentially, in some locations, connectivity with shallow aquifers, etcetera? I, I guess what – are we

saying that, that, ah, in most situations, um, in terms of restoring that BSAL, that'd be being restored in areas that currently don't have that sort of alluvial aquifer atm?

MR O'DONOGHUE: That's correct, yeah.

MR KIRKBY: Yeah. Yeah.

MR O'DONOGHUE: Yep. So it's out – outside that.

MR YOUNG: But there's some areas that do. And I guess that's the - - -

MR O'DONOGHUE: Look, there's some area – there's some, there's some non-open cut mining area – there, there's haul roads, um, some other infrastructure that, that, you know - - -

MR YOUNG: Crosses over alluvial areas.

MR O'DONOGHUE: - - - crosses that or - - -

MR YOUNG: Yeah.

MR O'DONOGHUE: Yeah. .....

MR YOUNG: But, fundamentally, the, the deeper disturbance with the open cuts avoids – because there's actually - - -

MR O'DONOGHUE: Yeah.

MR YOUNG: - - - that requirement for 150-metre setback.

MR O'DONOGHUE: That's right, yeah.

MR YOUNG: Yeah.

MR O'DONOGHUE: From the open cut. The – probably, the other point is that we're ..... pumping – like, the bore field pumping has to comply with the rules of the water sharing plan, um, and the Water Management Act, so the – you know, which strives, you know, sustainable water reuse in that resource in that valley. So, you know, KEPCO, for, for their bore field pumping, will, will be required to comply with any rules that are set in the water sharing plan through the valley as well, for the bore field pumping.

MR KIRKBY: But I guess one of the issues is the water sharing plan probably didn't factor in - - -

MR O'DONOGHUE: No. They're separate - - -

MR KIRKBY: - - - Mining. And, you know - - -

MR O'DONOGHUE: They are somewhat separate issues.

MR KIRKBY: - - - there's a few layers of things going on here that - - -

MR O'DONOGHUE: They are separate issues. I, I think the main thing is that the, the BSAL that's being disturbed is currently not relying on those alluvial aquifers, is my understanding.

MR YOUNG: Yep, that's right.

MR O'DONOGHUE: I mean, there's some ..... - - -

MR YOUNG: In terms of – yeah.

MR O'DONOGHUE: - - - but there's some that, that isn't. And the bits that are being disturbed - - -

MR YOUNG: Yeah. Yeah. Yep.

MR O'DONOGHUE: - - - are not directly connected to those alluvial aquifers.

MR YOUNG: They're, they're not overlying the alluvial aquifers, yep.

MR O'DONOGHUE: Yep.

MR KIRKBY: Okay. I think the, the next question we sort of put – and I think it's been partly answered – as to whether there are different levels of BSAL or it's just seen as one resource. Are there, sort of, areas that are ranked more highly because of – we, we talked a bit about alluvial aquifers, but because of proximity to markets or, or is it just a standard - - -

MR FRIEND: No.

MR KIRKBY: - - - soil?

MR FRIEND: BSAL's basically a standard soil. As I mentioned, it's, it's the top three and a half per cent. Um, yep, within BSAL, if you have a look at land and soil capabilities, um, there are, you know, classes 1 and 2 that are more highly regarded than class 3.

MR KIRKBY: Yep.

MR FRIEND: But, but, still, that is a, a very small proportion of New South Wales soil.

MS SQUIRES: And I think – yeah. It's important to note that's not necessarily finding three and a half per cent in the state. It's – this is the criterion: all we've found is three and a half per cent. Um, and so that's why it's, it's just one criteria. It's just one level. So we'd love to find more.

MR KIRKBY: Okay.

MR YOUNG: Which is why the protocol's important for, for the investigations in this case.

MS SQUIRES: Yeah. Absolutely.

MR YOUNG: You know, KEPCO's identified a whole lot more in the valley than was actually mapped. Yeah.

MR KIRKBY: So I guess the final question in the written questions we asked is, this – who monitors it over time? So, um, so we have 400 hectares of BSAL. If a mine were to be approved and rehabilitation took place, becomes BSAL-equivalent but presumably loses that status, um, is that – whose responsibility is it to monitor how much BSAL there is, um, over time and whether it's being lost and - - -

MR FRIEND: Are, are you talking from a, from the Bylong KEPCO perspective or - - -

MR KIRKBY: No, from a, a broader state perspective.

MR FRIEND: Broader, broader state - - -

MR KIRKBY: Because, obviously, um, there's a framework here. And if this, this mine were to be approved and this BSAL became BSAL-equivalent, assuming everything they say they can do they do, um, clearly would not be BSAL anymore. It would be something else. But who's monitoring? Because another mine might take some out and some might be lost to something else. Is it over time being monitored, this resource?

MR FRIEND: It's – I, I guess it's difficult to monitor. So there probably needs to be a distinction between the mapped BSAL – so the, the, the BSAL maps that, that we have – ah, and the verified BSAL. And, and, ah, as Mike mentioned, ah, the verification process that, ah, Bylong KEPCO, um, undertook, ah, found more BSAL, ah, within that mining footprint. So the mapped BSAL is based on maps that really can only be regional in, in, in nature. Um, so without going and, and verifying, ah, all the BSAL within, within all types of development – ah, not, not just mining – ah, it, it, it's not really possible, ah, to monitor that, that loss.

MS SQUIRES: Well, currently not .....

MR FRIEND: Um, yeah.

MS TUMNEY: I mean, in relation to this particular mine, there is a requirement for a, an annual report, so, resources in geoscience, um, on the activities in relation to the rehabilitation plan. So that's, that's one level of reporting. But, um, from our perspective, it's, um – we would like to see, um, monitoring, um, of the, the management of the, of the mine and the rehabilitation plan. So, you know, DPI would be happy to work with the proponent in that, in that regard. But, of course, we'd need potentially some assistance with resources to be able to undertake that work.

MR KIRKBY: Okay.

MR YOUNG: Is it fair to say, Christine, that, um, that, ah, whilst mining and extractive industries do have an impact on BSAL – and, I guess, particularly Gordon's outlining concerns about cumulative impacts and loss of prime agricultural land, etcetera – that there's a whole range of other developments? And in fact, some of those other developments may be of more concern in terms of their overall cumulative impact on BSAL?

MS TUMNEY: Um, that, that's a fair comment, yep, that there could – there definitely is other cumulative effects and other areas other than mining that, um, can cause a loss of BSAL. Um, yep. But without any oversight or monitoring of BSAL loss over the state, that's currently not identified.

MR KIRKBY: Okay.

MR O'CONNOR: Yeah, can I ask, um, just a question – just a follow-up question on your comments about three and a half per cent of the soils in the state being BSAL and have been mapped? I thought the mapping was undertaken of the areas most under threat, like in the Hunter and the Midwest. Was it actually the whole state that was mapped, was it?

MR FRIEND: So - - -

MS SQUIRES: .....

MR FRIEND: Yeah. So, so the - - -

MS SQUIRES: Yes.

MR FRIEND: - - - maps cover, cover the whole state. Um, the available data layers for those maps, ah, do vary in quality. Um, so, so the land and soil capability maps, ah, that are there are based on the soil survey maps, ah, which range from one to 100,000 to one to 250,000.

MR O'CONNOR: So it was a desktop exercise, and you just - - -

MR FRIEND: It, it, it, it - - -

MR O'CONNOR: - - - had to use what was available data-wise?

MR FRIEND: Yes. That's right. So – yeah.

MR YOUNG: And, Steve, the, um, the original two areas that were mapped when these – when the, the – this policy came out, that was the Hunter and the, um, kind of, ah, northwest where those mining areas were. That was the - - -

MR O'CONNOR: The Shenhua, etcetera? Yeah.

MR YOUNG: Yeah, exactly. That was then supplemented by further areas.

MR FRIEND: Yeah. And, and, and certainly, um, resources were put into, um, further surveys of those areas to, to try and, um, ah, get a, um, get a, a, a more detailed resolution within those areas.

MR O'CONNOR: So could you express a confidence level, then, that – you think there's three and a – point five per cent of the state soils are BSAL. But what level of confidence do you have that that number is close to accurate? Is it – you know, could it be seven per cent? Could it be one per cent?

MR FRIEND: So, look, I, I, I guess the different areas will, um, will probably show more or less – if, if you went down to the verification process, the verification process, um, will basically ask you to, to go down to about one to 5000 scale.

MR O'CONNOR: Of course.

MR FRIEND: Um, the examples in the northwest that, that, ah, they went and redid, I think one area showed – ah, when, when they went and got that better resolution, one area showed that there was more BSAL. The other area that they did show, there was, ah, slightly less BSAL - - -

MR O'CONNOR: Okay.

MR FRIEND: .....

MR O'CONNOR: That's useful. Okay.

MS SQUIRES: But it – yeah, it wouldn't come up, um, a significant, um, amount. So it'd still be around that three point five per cent. It would just detail the, the, the boundaries a little bit more. So - - -

MR O'CONNOR: Just might move around where it is a little.

MR FRIEND: That's right. Yeah.

MS SQUIRES: Yeah.

MR O'CONNOR: Thanks. That's my question.

MR KIRKBY: Wendy, do you have any follow-up - - -

MS LEWIN: No, no. No more questions. I'm good.

MR KIRKBY: Brad or Anna, do you - - -

MR JAMES: Nah.

MR KIRKBY: Okay. Thank you very much for coming in.

MS SQUIRES: Thank you.

MR KIRKBY: It's, ah, yeah, it's been useful.

MS SQUIRES: That's been helpful.

MR YOUNG: Okay. Thank you.

MR FRIEND: Thanks.

MR KIRKBY: Um, so, yeah, if you wanna provide any further follow-up information, um, that will be fine. And we'll, we'll have a discussion afterwards. And if there's anything we need to come back to you, we'll, we'll come back to you if we want anything specifically clarified.

MS TUMNEY: Sure. Thanks very much.

MR KIRKBY: Thank you very much for coming.

MR O'DONOGHUE: Thank you.

MEETING CONCLUDED **[12.50 pm]**