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TRANSCRIPT OF PROCEEDINGS

TRANSCRIPT IN CONFIDENCE

O/N H-1304214

INDEPENDENT PLANNING COMMISSION

MEETING WITH APPLICANT

RE: RUSSELL VALE COAL UNDERGROUND EXPANSION PROJECT

PANEL:	**PROF ALICE CLARK (CHAIR)** **PROF CHRIS FELL** **DR PETER WILLIAMS**
ASSISTING PANEL:	**BRAD JAMES**
APPLICANT:	**DR BRUCE HEBBLEWHITE** **DR KEN MILLS** **DR NOEL MERRICK** **WARWICK LIDBURY** **WAYNE SLY** **DEVENDRA VYAS** **ELADIO PEREZ** **BARBARA CROSSLEY** **DAVID HOLMES** **GABRIELLE ALLAN**
LOCATION:	**VIA VIDEO CONFERENCE**
DATE:	**12.04 PM, TUESDAY, 13 OCTOBER, 2020**

PROF A. CLARK: Good afternoon and welcome. Before we begin, I would like to acknowledge the traditional owners of the land on which we meet. I would also like to pay my respects to their elders past and present, and to the elders from other communities who may be here today. Welcome to the meeting today. Wollongong Coal Limited owns and operates the Russell Vale Colliery located in the Illawarra region, approximately eight kilometres north of Wollongong and 170 kilometres south of Sydney. Wollongong Coal is seeking approval for the Russell Vale Underground Expansion Project which involves mining by means of bord and pillar mining technique. Wollongong Coal proposes to extract up to 3.7 million tonnes of run-of-mine over five years at a production rate that would not exceed 1 million tonnes of product coal per year.

My name is Professor Alice Clark. I am the chair of the IPC panel. Joining me are my fellow commissioners, Professor Chris Bell and Dr Peter Williams, Brad James from the Office of the Commission, are also in attendance. In the interest of openness and transparency, I will 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. This meeting is one part of the Commission's decision making process. It's taking place at the preliminary stage of this process and will form one of several sources of information upon which the Commission will base its decision.

It is important for the commissioners to ask questions of attendees and to clarify issues whenever we consider it appropriate. If you are asked a question and are not in a position to answer, please feel free to take the question on notice and provide any additional information in writing which we will then put up on our website. I request that all members here today introduce themselves before speaking for the first time and for all members to ensure that they do not speak over the top of each other to ensure accuracy of the transcript.

As you are aware, we are meeting via video link. Should we experience technical issues or lose connectivity, Brad James will place those participants still connected on hold, so please stay connected. If your connection has been lost, please contact Brad on 9383 2165. The meeting will be temporarily adjourned and the transcript will be paused until we can reconnect with participants. We will now begin, so welcome everyone. I will switch screens so that you are in front of me. Thank you for your patience. I will now handover to Wollongong Coal to commence proceedings. It's my understanding that we have Bruce Hebblewhite with us for a short time at the beginning, and I'm anticipating that we might move to that area while we have Bruce with us, but I'll handover to Wollongong Coal now. Thank you.

MS B. CROSSLEY: Thank you, Alice. My name is Barbara Crossley, Managing Director or Umwelt and Project Director for the environmental assessment work done on behalf of Wollongong Coal. Wollongong Coal have asked me to facilitate the presentation as there will be a number of speakers on behalf of Wollongong Coal.

Before I move into the presentation, just quickly, to introduce who's in this meeting on behalf of Wollongong Coal, we have Devendra Vyas from Wollongong Coal; Warwick Lidbury, CEO of Wollongong Coal; Wayne Sly from Wollongong Coal; Eladio Perez, Wollongong Coal Environment and Community Representive; we have, as we said earlier, David Holmes from Umwelt, Principal Environmental Consultant; Gabrielle Allan from Umwelt, Principal Environmental Consultant and Project Manager for this work; we also have as you mentioned a moment ago, Alice, Professor Bruce Hebblewhite. He will be with us for the first our of this presentation and will participate in the early part of this presentation.

We have Ken Mills from SCT, and we have Dr Noel Merrick, groundwater expert as well. If you're comfortable, Alice, we will proceed to take you through a presentation and welcome the panel's members' questions as we move through that presentation. As you've said, we will take questions on notice if we're unable to answer then.

PROF CLARK: .....

MS CROSSLEY: Gabrielle Allen, Gabby was – thanks, Alice – Gabby, you were going to share the screen on our behalf; are you able to do that?

MS G. ALLAN: I hope so.

MS CROSSLEY: I can see that. Can everybody else see that screen?

PROF CLARK: Yes, thank you.

UNIDENTIFIED MALE: Yes. Yes, thanks.

MS CROSSLEY: Okay. So we'll move fairly efficiently through the background. Gabby, the next slide please. We'll take you through a brief introduction and background. We are mindful in taking you through that background that you no doubt have met with the DPIE, so we'll keep it succinct. We'll take you through an overview of the revised Underground Expansion Project and the mine design features, they will be presented by Warwick Lidbury, CEO of Wollongong Coal.

We'll deal with a number of aspects of how the mine design addresses the previous PAC and IESC issues, the peer review process, and the summary of key impacts of proposed mitigation and monitoring as it relates to underground mining, both David Holmes and Ken Mills will contribute to those discussions, and as we've spoken about earlier, Bruce Hebblewhite will be available to answer questions as well. We'll then move on to the impact assessment and management as it relates to the surface facilities and other issues. As I said earlier, feel free to ask questions at any time or pause at key moments. And, obviously, we're available to answer questions at the end of this discussion.

Moving through, in terms of brief background, you will be aware that the original ..... 12.11.28 assessment for this project was exhibited in early 2013, and the application was launched by the previous owners of the mine. It was quite a different proposal in that regard. It was extensive longwall mining ..... 12.11.40 based at Wonga West and Wonga East areas with an 18 year life-of-mine in a 3 million tonne per annum ROM production rate.

Moving on to the next slide, that shows the original UEP mine plan, the proposed longwall mines shown in dark hatched, overlaying over the history of extensive underground mining within the entire leaseholding with the Wonga East area showing down to the bottom – towards the bottom of the screen, and the Wonga West area shown towards the top of your screen on the left-hand side.

You will no doubt be familiar from the briefings and background material to date that the original project in the subsequent preferred projects ..... 12.12.30 agency and community concerns with key residual issues following two PACs related to the uncertainty of water and subsidence impacts in multi-seam environment; potential impacts on the upland swamps; Cataract Reservoir and its associated catchment; issues in relation to noise; Bellambi Creek flood management, traffic, and transport. The revised focus is for this particular application in the Wonga East area in the multi-seam mining environment where there's been previous mining within the Bulli Seam and the Balgownie Seam and two and a half longwall panels in the Wongawilli Seam mined previously. The target seam for this application is the Wongawilli Seam and the depth that cover ranges from 250 metres upwards across that area.

Umwelt joined this process in 2016 after the second PAC review. We were engaged by Wollongong Coal at the time to work with both Wollongong Coal and the mine design consultant to advise on necessary project revisions and additional assessment required to address the key concerns. We joined this project with the view to tackle, together with Wollongong Coal, those key concerns that were raised throughout the previous process and summarised in my earlier discussion with a revised project design. And then we then proceeded, once Wollongong Coal had committed to substantial project revisions, including a commitment to no longwall mining, either for this application or for future applications within this lease area.

We proceeded through a process of revisiting and updating all the of the relevant assessments together with the relevant specialists working with us in that regard. So the current application was focused on having a life-of-mine of at least five years to provide sufficient time for necessary studies and approval processes to be undertaken to enable future mining in the extensive area of Wonga Central, Wonga West, as I spoke about earlier and who Warwick will speak to later as substantial additional resource available.

Moving on to the next slide, Gab. When we joined this process and we were going through the interview ..... process of revising the project design, we understood very extensive consultation with the relevant agencies. Some of those key agencies are listed there, together with Wollongong Council, the Community Consultative

Commission – Committee, the federal government environment department, and very importantly, the new neighbours to the Pit Top and Ballambi Lane and the broader community representatives which we'll speak to later in this presentation in terms of that consultation process.

Key outcomes of the process is the revised project has addressed the issues of previous PAC and IESC review issues through a fundamental change to the mine design. The design has been established to avoid subsidence and subsidence related impacts, to be a long-term stable mine plan, eliminates the potential for significant impacts on groundwater surface water biodiversity and provides far greater certainty of impact prediction of that which was previously proposed.

There's been extensive peer review and we'll talk about in more detail shortly to confirm that there's imperceptible subsidence and imperceptible subsidence impacts on groundwater surface water biodiversity surface features as a result of the revised mine design. And, similarly, we'll hear from Ken Mills and have Bruce available for questions in relation to the peer review risk assessment which confirms negligible risk of pillar failure beneath any uplands swamps, and that the risk of loss of any uplands swamp is very rare to negligible. And we will also talk to the previously raised WaterNSW issues and the fact that the project now satisfies the netural or beneficial effects tests or summarises ..... we test.

The revised project provides a nett benefit to New South Wales of $174 million when fully operational with 205 full-time jobs and 22 construction jobs to get to that level of operations. Gab, the next slide please. So I'll now handover to Warwick who will talk through the revised underground expansion project briefly before we then get into the subsidence assessment. Thanks, Warwick.

MR W. LIDBURY: Thank you. My name is Warwick Lidbury. I'm the CEO of Wollongong Coal. First, thank you for the opportunity to present this project. It's been a long time coming. We have a long history at this mining leases ..... 12.17.49. We started operation in 1887 and the first mine was the South Bulli Colliery. We mine three seams, all access via adits into the seam from the current surface facility site. The Bulli Seam - - -

MR B. JAMES: Sorry to interrupt, I just have someone called Eladio Perez in the waiting room. Are they representing Wollongong Coal?

MR W. LIDBURY: Yes, they are. Wollongong Coal.

MR JAMES: Okay. Great. Alice, your okay? Bring him in. Okay. I saw the nod.

MS CROSSLEY: Okay. Okay.

MR JAMES: Over to you.

MS CROSSLEY: We've got three seams, one being the Bulli Seam which was mined by bord and pillar and pillar extraction; the middle seam is the Balgownie Seam which is mined by longwall and bord and pillar; and the seam that – where our project is in is the Wongawilli Seam. And I would just like to note that there's no interaction between the Bulli Seam and the Balgownie Seam, so there's no mining drifts, shafts, or ..... connects those seams to the Wonga Seam.

The current surface facilities have been part of the community for many decades and the township of Bulli and Russell Vale were built around the mine. Mining in Wongawilli Seam ceased in 2015 when the approval wasn't granted. From then they've been in care and maintenance, with the site being managed in accordance with the preliminary works approvals consent.

This is a – depicts the size of the leases available to us. The Pit Top right in the bottom right corner is the Pit Top of the mine, and it depicts the eastern area, the central area, and the western area of the leases.

Next slide. This one is the Russell Vale lease area project in blue, in the right-hand corner, so it shows the extent of what's ahead of us in future proposed operations.

Next slide. Russell Vale has large volumes of economically viable coal that remains unextracted within the central and western portions of the Russell Vale lease holdings. It's estimated at 295 million tonnes from the JORC report. It's high quality, prime hard coking coal primarily for steel manufacturing. WCL is committed to recovering this resource in an environementally and socially acceptable manner. Exploration feasibility studies including baseline studies are ongoing for this purpose, including a drilling program being completed for the western – the central part as we speak.

The revised project will enable mining to continue while undertaking further detailed environmental and social impact studies to progress further planning approvals for the resource. Wollongong Coal has committed that all future mine planning within the Russell Vale Colliery lease holdings will be based on long-term, stable first working mining method which is bord and pillar in order to limit the potential for subsidence related impacts to surface features or to water resources.

Key features. The key features are, it's a non-caving first working mining method and stable pillar design with imperceptible subsidence impacts; no new longwall mining proposed for this project or future mining at Russell Vale Colliery; existing longwall equipment is to be removed from the underground, and that's part of this proposal; the Wongawilla Seam only in the Wonga East area, production rate of up to 1.2 million tonnes run-of-mine and 1 million tonnes product coal over five years; total resource recovery, approximately 3.7 million tonnes. We've got substantial noise reduction redesign of the Pit Top and we reduce the hours for surface operations and trucking and reduce product trucking rates.

This is an indication of – on the left-hand side, if we look at the bottom, there's the open roadways for bord and pillar. This process has no strata cracking, no roof collapse, stable pillars, no perceptible subsidence compared to the other mining methods, the longwall mining method that was here, where you had roof collapse, strata separation, subsidence on the surface, and this is what we're eliminating going forward at Wollongong Coal.

Next slide. This is an indication of the surface facilities. All of the – what's in green is the proposed working ..... if you go back one, Gabby. What's in green is the proposed workings. We do not go underneath any of the reservoir, and we have different sized pillars and different designs and elimination underneath some of the surface features including the roadway, any of the pilons for the powerlines, whatever else is identified as we do the permits to mine for each section of the mine.

Next one, Gab. This is an indication of the existing and proposed workings. The proposed workings is designed around the interaction with the Balgownie longwall blocks. The topside – the northern side of this diagram is inaccessible due to a sill above the Wongawilli Seam, that's why there's no workings to the right-hand side. So that's how we've developed the direction and everything of these panels.

Next one, Gabby. The mining method section: longwall mining and secondary exactration discarded as an option. These methods do not meet the key design parameters required to avoid impacts on the environment. The selection criteria: long-term stable coal pillars delivering no perceptible subsidence from the Wongawilli Seam workings where no – and no secondary extraction was considered. Minimised stress influence from the upper seams align under the Balgownie longwall blocks. Suitable for quality control to comply with panel design, survey, geological and geotechnical mapping, able to manage interactions with faults dykes, you can reduce the number of headings and it's a flexible mining method to go around or not go where there is a fault or a dyke.

It's a proven mining system maximising safety and productivity in the conditions. Bord and pillar methods utilising continuous miners, shuttle cars, and conveyor belts. The selected method is place change mining, also called cut and flit. It's a simple and well understood method that addresses selection criteria and provides certainty to impact predictions. Mine plan features, mining operations, long-term, stable first workings bord and pillar mining method. The pillar and mine plan designed to avoid subsidence impacts. Long-term stable pillar designs avoids cracking above the seam. There's no perceptible subsidence, no requirement for dewatering of the upper seams. Dykes and faults avoided where possible. No mining under full supply level at the Cataract Reservoir.

Surface operations features: we have a reduced production rate from the existing proposal of 3 million tonnes per year to 1 million tonne product coal. Coal processing to improve coal quality, designed to minimise noise impacts to the residents. This is a dry separation plant. It's a deshaling only. It's been repositioned on the lease. There's no wet processing, no fines produced or tailings

produced as part of this process. We've redesigned the Pit Top layout to improve noise mitigation. We've got limited hours of operation, run-of-mine coal onto run-of-mine stock bowl is 24 hours.

The remaining surface facility ..... coal transport limited to daytime only with an allowance to extend into evening hours in emergency situations, eg, unexpected port closures or interruptions. Reduced stockpile size, 14,000 tonnes product, 1500 tonnes reject, 3000 tonnes run-of-mine. Rejects in placement under or sold as ..... and trucked offsite as the preferred method.

Pit Top layout – Gabby, you might be able to follow what I'm saying here – the top right-hand Broker Street noise wall, because that noise wall goes from the front gate to that area above where Gabby's pointing on the screen. Bund 1 is that huge one there, is a extension of the height. Bund 4 down the bottom, is also a new noise wall which is an extension of the height. Bund 2 and 3 is a southern side height extension for those bund walls. Bund 5, up to the right-hand side is an extension of height also. The process plant has moved into a lower location and the noise from that is protected by those bund walls. The product stockpile has been moved, and that's also protected by the bund walls. The visual impact of the bund walls are – they will be coloured, and we've committed to trees from Symbio Koala Reserve to be planted on either side to extend the reserve we've already got for those to help with feeding the koalas; and that's all I've got. Thanks very much.

MS CROSSLEY: Thank you, Warwick. Is there – Alice, is there any questions on the project design before we move into the subsidence?

PROF CLARK: No. I think there might be some loop around ..... some of the points as it relates to things later, but I think at this stage, it might be prudent to move into the subsidence.

MS CROSSLEY: Thank you. We spoke to the previous issues that have been raised and we'll loop back and address how those have been ..... , shortly. Gab, move on, please. And, similarly, we'll deal with the IESC issues. These slides that I've just flicked through, we'll leave for the IPC to digest given time, but they, essentially, just relate to how those particular issues have been dealt with, and we're dealing with those in the presentation as follows.

As we spoke about earlier, there's been an extensive key review process. The subsidence assessment prepared by Ken Mills and his team SCT and the pillar failure risk assessment prepared by Ken Mills and the team at SCT have both been reviewed by Dr Bruce Hebblewhite, a professor of mining and engineering at University of New South Wales, an expert in the fields of geotechnical engineering, subsidence, and underground mining. The groundwater assessment was prepared by Geoterra and GES and reviewed by Dr Noel Merrick, we've introduced earlier and is online as the groundwater expert. The uncertainty analysis prepared by HydroAlgorithmics has also been peer reviewed by Dr Frans Kalf.

Moving on to the subsidence assessment and the – we've spoken about how general subsidence behaviour works, so we'll move on. The SCT subsidence assessment confirms the revised mine plan will be long-term stable. We've spoken about the no perceptible subsidence – service subsidence or significant interaction with surface or subsurface groundwater is predicted. No significant interaction with overlying seams or significant impact on the stability of pillars, and Ken will talk to that more shortly. No credible risk of water flow along major structures from Cataract Reservoir. Imperceptible subsidence related impacts to natural surface features that are listed on the slide, and, therefore, also, no perceptible impacts on listed threatened species or communities or Aboriginal sites or heritage. And extensive subsidence and pillar stability monitoring is proposed and, indeed, proposed as a compliance requirement as the draft conditions to confirm predicted imperceptible impacts.

Moving through into the peer review process which I'll allow Bruce to answer questions on shortly once we get through the pillar risk review process, but the peer review processes are confirmed ..... that the pillar design provides acceptable level of stability, no significant subsidence impacts on surface or groundwater regimes, and that the assessment conclusions are appropriate and valid as it relates to the subsidence peer review. Gab, moving on to the pillar risk assessment. Ken, would you like to take this up, please.

DR K. MILLS: Yes, certainly. My name is Dr Ken Mills from SCT. I'm a principal geotechnical engineer with about 40 years experience in subsidence related work. We did a – the IESC requested a quantitive assessment of the risk of pillar failure with a design being proposed at Russell Vale in respect of a catastrophic loss of upland coastal swamps. It's important to understand that the – pretty much the whole area has been previously mined under ..... in the Bulli Seam and a smaller area in the Balgownie Seam with up to a metre of subsidence from Bulli Seam mining and ..... Balgownie Seam mining, and recent longwall mining in the Wongawilli Seam produced ..... in a small area again up to 1.7 metres of additional subsidence.

The small levels of subsidence that we're expecting from this proposal are in the very small range of the barely perceptible that would be hard to measure, and we have assessed quantitively that the risk of catastrophic loss of any of the swamps located above the Russell Vale area would be extremely rare based on the criteria requested by the IESC.

So the ways that subsidence could occur at the surface relate to instability of the Wongawilli Seam pillars themselves or the way that these pillars interact with the overlying seams, causing, potentially, any interaction or impacts associated with – sorry – impacts in those seams to then lead to a subsidence event. And the third way that, you know, subsidence may occur in the future is related to pre-existing subsidence hazards that may exist.

We've looked at the pillar stability in the Wongawilli Seam, and found that there was very – extremely rare potential for those – whoops, just lost – can you still hear me?

PROF CLARK: Yes.

MR MILLS: Okay. I've lost my screen for some reason. Hang on, it has come back. Perfect. The – I've just lost my train of thought – yes – so the pillars in the – regular pillars in the Wongawilli Seam are – excess has been extremely rare. There a couple-odd panels below Balgownie Seam goaf areas that are not below swamps that have a slightly lower risk – or, sorry – higher risk of failure; still low. And the subsidence would still be low as a result of any failure, but are not below swamps, then, so all outside the assessment criteria. The bottom line is that there's a very negligible risk of any pillar failure in the Wongawilli Seam causing catastrophic loss of a swamp at the surface.

So, moving to the next one, the second scenario is one of interaction with the overlying seams. The Balgownie Seam pillars are large and associated with previous long-haul mining. There's no potential for interaction in the area that has been mined in the Wongawilli Seam to cause any further impact there. So the Balgownie Seam has no potential for future subsidence caused by interaction effects.

The Bulli Seam is about 30 metres above the Wongawilli Seam, and it too – it has no potential for interaction from a stress point of view, but there is an existing hazard that we weren't able to close out associated with Bulli Seam goaf areas. Most of these or about half of them we could confirm as having previously subsided, collapsed and subsided, and it's likely that the same has occurred to the other areas. But it's not able to be confirmed. That will be able to be confirmed when mining takes place, because of the elevated abutment loads, but we have to carry that forward as an existing hazard that exists. So the next slide, please. So now we move into the area of water impacts. Barbara, you might be on mute, mate.

MR D. HOLMES: I think this is handing over to me. So I'm David Holmes, principal - - -

MS CROSSLEY: Just one moment, David. Before we go into broader groundwater impacts, before we move off subsidence and risk of pillar failure, just an opportunity if the IPC wishes to ask any questions of either Ken or Bruce.

PROF CLARK: Thank you, Barbara. Yes, we will have a couple of questions here. I think, just to kick off, you talked about how you landed on the mining method where you ..... pillar. We were interested to know if ..... along that path any other mining methods before you went to ..... is there any comment that anybody .....

MR MILLS: Look, we – before I hand back to Warwick, we did seek to answer that question in terms of the principles of design. There are a number of different forms of bord-and-pillar mining. The earlier slide was seeking to explain, I anticipate, that question in terms of why this particular methodology. But, Warwick, would you like to comment anything further in that regard?

MR LIDBURY: Yes. To meet the criteria, we can't do any of the other secondary extraction methods, like lift and pocketing or any of those methods, because you are at risk of minor subsidence. So with the criteria of no subsidence and environmental – minimising or eliminating our environmental impact, this is the best method, because when you're doing bord-and-pillar ..... change you're actually supporting the roof. You're ..... bolting the roof up and eliminating any risk of a fall or interaction with any of the seams above you. So this was the desired method to go forward in Wollongong Coal.

PROF CLARK: Thank you.

PROF FELL: Just to follow up on that, if I might, I think there's a method known as pine feather that has been proposed in other mine works on Wongawilli. Any comments on that?

MR LIDBURY: I'm not going to comment on the other mine, but I've used a similar method to that at other mines that I've managed. And that is where you have pockets where you don't support it. You do a lift and then you do pocketing, and that puts a risk of not supporting that roof, interaction with the seams above, and that's not what we want at Wollongong Coal. We want to have substantial pillars and secure headings so there's no interaction and no subsidence.

PROF FELL: So what impact does your approach have on resource recovery? What would it be, typically?

MR W. SLY: Yes. I can help there. Wayne Sly: I'm the chief operating officer. We get about 35 per cent recovery on the place change system. In the recovery thing, you know, we're leaving the barriers between the panels. To meet the size of the pillars, we're talking 30 to 35 metre centres, five and a-half metre wide roadways, and it's about 30, 35 per cent. But the other benefit is those roadways: we monitor when we drive them. We monitor the roof. We have measuring devices in the roof. So we ensure the stability of the roadways. We can inspect the pillars. We map the pillars. And we can go back and inspect those over the next five years.

So the intent is, particularly for this first approval, is that we would be able to confirm that our design criteria is right. Long-term stable pillars will be able to not only measure the surface impacts, but measure what's going on in the panel right on a continuous basis. We've accessed all of those areas. We may reduce the ventilation from time to time, but we can re-access and open up regulators. So it's actually, like, a – part of this project is we approve this design criteria.

PROF FELL: Thank you. That's very helpful. Could I ask one follow-up one, please - - -

PROF CLARK: Yes, Chris.

PROF FELL: - - - Chair. I notice that you're only mining 2.6 to 2.8 metres of what is a 7.7 to 11.9 metre Wongawilli Seam. And I guess my question is why? I think I've found the answer, partly. It's said to be either non-economic, because the quality of the coal in the upper part of that seam is not so good, and if that's the case doesn't that impact on the pillar design? I guess I will be asking Professor Hebblewhite. Should we have any worries here about stable roofs and pillar design?

PROF CLARK: Bruce.

DR B. HEBBLEWHITE: Yes. Sure. Bruce Hebblewhite here. I think, when the coal quality is not as good, it certainly doesn't mean that the coal's strength from a geotechnical point of view is inadequate. Obviously, you do get variations in coal strength, and I'm sure Ken and SCT looked at that as part of the design. But I think it's still a given in the design that you have competent coal roof, and that's both over the pillars and over the roadways.

PROF CLARK: So in terms of the competency of that ..... the height that you're mining, you said ..... that that is pretty much the same coal strength along that column.

MS CROSSLEY: And is that something you can comment on?

MR MILLS: So the roof – about midway up the seam, about halfway up in a six or seven metre seam is a sandstone band around about a metre thick. It's a choof band, and it's a lot stronger. And it separates – largely separates out the strata above, which tends to be a lot more higher ash or more ..... so it greys into a carbonation mudstone. The material at the bottom of the seam, the lowest part of that seven-metre section is the sweet spot, generally up to about 1.8 metres. Then it's an equation of economics in – for the next half a metre or so in – so from a strength point of view the coal strength is assessed on the lowest part, which is the part that's also exposed in the – by mining.

MS CROSSLEY: So putting through the first workings or, I guess, the mains as well, are you expecting or what is the plan for ground conditions through there, and should, I guess, that expectation not be met or be exceeded by what you find how long in advance do the methods that you're using to predict those stresses or those conditions changing give you to react?

MR LIDBURY: Well, I will answer that one.

MS CROSSLEY: Thank you.

MR LIDBURY: When you're mining with bord-and-pillar and place change, you will meet different conditions every day, and there's different support patterns that are used. And if you've got – detected a change in that support pattern, then you would put additional support in or secondary support. There's a TARP for support, which is a trigger action response plan, and it goes from green to orange to black.

And so the black one is Megabolts. The first one is the normal support. The middle one is you put additional support in, and the third support you would be putting Megabolts until you get through that area, and you're back into the competent roof area. So we support all of the roof in this mining method. We don't do pockets or fenders; fully support all of the roadways.

PROF CLARK: So you spoke also about when you're on the edges – I guess where I'm presuming the abutments ..... that are referred to in the document might be impacting. But you will have monitoring there to be able to test if that type of stress is occurring. Can you explain a little bit about or expand on what mitigation you will need to do, should you encounter unexpected stresses in those areas?

MR LIDBURY: We had – Ken, you can go.

MR MILLS: I just put it into context a little bit. So what we're looking for is the effect of a Bulli Seam goaf edge, that is, where the Bulli Seam has been extracted versus where it's solid. And there's expected to be a footprint from that down through the 30 metres, 30 to 40 metres intermediate strata. The size of that footprint is relatively limited in extent, and probably only impacts an area of, maybe, 30, 40, 50 metres along the roadway. So it impacts on a single pillar, rather than across a broad area.

And then once you go into the – underneath the goaf you're in an environment where you're now protected from that overlying plate. So the weight that was concentrated in one area was not concentrated in another area. So there's an offsetting effect at the seam level, and from a stability point of view we've taken the account of that extra load in assessing the long-term stability of those few pillars that are under the goaf edge, rather than, sort of, more generally. The ones that are under the goaf themselves are quite lightly loaded by comparison to the ones underneath the goaf edge.

PROF CLARK: So thank you for that clarification. I think I understand what you mean there, Ken. My question is, as you're monitoring and looking for the stress that you referred to on – I will come back to the slide number – should you find that you might be under one of the areas where you're yet to confirm if that has ..... and your monitoring is indicating that, what will you do and what impact could it have if you're under those areas that are yet to be confirmed ..... in the ..... what impact could that potentially have on subsidence?

MS CROSSLEY: Ken.

MR MILLS: So just to be clear, all of the areas that have come down already, that are known to have subsided: they will also experience that same footprint. So ..... will be there. And in terms of roadway management that will be as Warwick and Wayne have explained. It will be a case of providing additional support in those areas to ensure that they are stable. In terms of subsidence impact, there's not

expected to be any subsidence impact because we're talking about a relatively small area, and quite deep below the surface.

So what we're really saying: we're expecting those areas of Bulli Seam that aren't confirmed to also experience those elevated abutment stresses as well, and that will become apparent as additional ribs fall or additional fracture and not the ribs, as you might, under those areas, and not only those areas but also areas that are known to have subsided as well. So it will be part of the normal management of mining in those areas.

PROF CLARK: So it's ..... that those pillars will fail. It's - - -

MR MILLS: They won't, no.

PROF CLARK: It will just – that you will be able to deal with this – just for the avoidance of my doubt, you will be able to deal with this by additional ground support and monitoring. Have I interpreted that correctly?

MR MILLS: Yes, that's correct. Yes. There's no sense that there will be any overloading of pillars that will cause additional subsidence to occur. What there will be is elevated stresses, but those elevated stresses have been taken into account.

PROF CLARK: Thank you.

PROF FELL: But if I might, Alice, there's no way you could measure this before you start mining. Is there any technology anywhere that would allow you to tell if it's open space or collapsed?

MR MILLS: It's not really that easy to do so, because there are potentially remnant pillars. There are – where we have done work and drilled holes down through we've found it to be collapsed, and I would fully expect it to be collapsed. So the expectation is that there isn't any hazard, but there are some areas where we haven't drilled holes through or it hasn't been possible to – it hasn't been mined in the other seams, and so we haven't be able to interpret from that. So there are still some areas. I'm convinced in my own mind that they will be down as well, but there's not really any easy way to tell something 300 metres below the surface without causing a lot of, you know, surface impacts, putting drill rigs and the like in place. And there's always the danger that if you drill a hole and you hit a place that has fallen and you apply that to a larger area of the whole panel. So subsidence-type related information or this abutment load interpretation from the mining that we plan to do, that will provide that level of confidence. And - - -

PROF FELL: And basically – sorry.

MR MILLS: Sorry. Go for it.

PROF FELL: I was just wondering if there was something seismic or something you could use.

MR MILLS: The short answer is not easily, not convincingly.

PROF FELL: Thank you.

PROF CLARK: Thank you, Ken. I have a follow-up question around the longwall where I believe you're mining some 20 or 25 metres to recover ..... is there any risk of subsidence with that additional longwall mining to .....

MR LIDBURY: Do you want me to answer that?

MR MILLS: .....

MR LIDBURY: To take the – the longwall stopped 25 metres from the last cut-through on the existing approval. The approval was granted, but the time lapsed. So we're in a state where we've got to do what they call a run-down to take it off. It's unsafe to take it off in its position now. So in that 25 metres we have to put what they call take-off ..... mesh up, and we have to Megabolt and secure that area so when we're actually taking the equipment out it doesn't fall in. So what it does: it will sit down a little bit, but it won't – the subsidence will be very minimal, if any, from taking this last part out.

MR MILLS: Could I add a little bit there ..... it's just ..... treating another 25 metres will cause another increment of the existing subsidence profile. So there's ..... very small amount. But it is an incremental of 25 metres of retreat, which has the effect of causing a continuation of the subsidence that has already occurred. It's a fairly narrow block. It's all by itself. So the magnitude of the subsidence is small. But it's an increment of what has already occurred and what is approved to occur.

PROF CLARK: Thank you. What is a very small amount?

MR MILLS: I would have to look at - - -

PROF CLARK: .....

MR MILLS: If I can get back to you on that one.

PROF CLARK: Yes, please. Thank you.

MS CROSSLEY: And nothing that area has already been established under approved extraction plans as well, and that the longwall was pulled up such that the angle of draw didn't affect the relevant uplands form. So - - -

PROF CLARK: Thank you for that clarification ..... that's important to note.

DR HEBBLEWHITE: Excuse me, Alice. It's Bruce here. I'm afraid I'm going to have to leave you. I apologise for that, but I've got another meeting that I've got to chair in a couple of minutes' time.

PROF CLARK: Thank you, Bruce. If we have further questions that's determined need your input, I'm sure they can be directed to you in writing.

DR HEBBLEWHITE: Yes, please do. Yes.

PROF CLARK: Thank you.

DR HEBBLEWHITE: Thank you.

PROF CLARK: In terms of – so that was the longwall one. Yes. On a couple of the slides, in particular 11 and 36, we spoke about risk in terms of the risk of collapse against the swamps, and that being the remit. My question there is is there risk outside of the areas that that remit covered which could lead to connectivity to swamps or unexpected connectivity to swamps? If somebody could address that.

MR LIDBURY: So you're talking about connectivity in terms of interconnected cracking through to swamps. So, fundamentally, the mine design designs out that risk, but I will let Ken explain that in terms of interconnected cracking.

MR MILLS: So as has been – as was indicated previously, there has been subsidence of a metre up to three-plus metres over the area, and that there has created a fracture network within the overburdened strata, and that exists already. That won't change by the proposed mining. There's no sense that it will change even the small amount, but imperceptibly is likely. So in terms of answering the question, there's no real – this mining is not going to change the pre-existing condition.

PROF CLARK: Or exacerbate it?

MR MILLS: What's that, sorry? I didn't catch that.

MR LIDBURY: Or exacerbate it.

MR MILLS: Exacerbate: no, it won't exacerbate. No, it won't change it in any real way.

PROF CLARK: One other question I had from what has been presented so far was there was mention of a JORC report. I'm assuming that's a JORC-compliant report on the ..... possible to ..... point me in the direction of where that is I would appreciate that ..... rest of the panel.

MS CROSSLEY: We will take that on notice and get back to you, Alice.

PROF CLARK: Thank you. Chris and Peter, any other questions at this stage?

DR P. WILLIAMS: Thanks, Alice. Peter Williams here. A couple of slides showed the Wongawilli Seam workings are very close or, in fact, almost look like abut areas of the Cataract Reservoir. Just some comment on that, because I know at one point – I think it's Heritage New South Wales – talk about being unclear about the relationship of the mining in respect to the full capacity of Cataract Reservoir. So I just wanted to get some idea of that abutment boundary point and how that was going to be treated, given that it appears that you're trying to make very clear that you're not actually overlapping with the full supply.

MS CROSSLEY: Correct.

DR WILLIAMS: Yes.

MS CROSSLEY: So, Peter, just to pick that one up one of the design criteria was to not undermine the full supply level of the reservoir. So the mine design has been established to not go under the full supply level of the reservoir.

DR WILLIAMS: Okay. It will go – there will be some area where it more or less abuts the - - -

MS CROSSLEY: It certainly goes close to the boundary, and, Dave or Ken, you can probably add further in terms of that detail. But it has been designed specifically to not undermine the full supply ..... reservoir.

DR WILLIAMS: Okay.

MR MILLS: That's right. And the first workings – make sure the first workings are such that you would not expect to see any interaction with the surface two hundred and fifty-odd metres above.

DR WILLIAMS: Yes.

MR MILLS: And it would only be through a relay mechanism, through having any effect on the Bulli Seam that could have any interaction. And that Bulli Seam hasn't been mined under the reservoir either. So it doesn't seem a credible way to be interacting with the reservoir.

DR WILLIAMS: All right. Thank you. Just one other question. Excuse my ignorance, but, Ken, you referred to the term – and it appears a lot in the reports too – the concept of a catastrophic loss of swamps. Can you just define what you mean by catastrophic and not catastrophic?

MR MILLS: Yes. Look, I don't have expertise in swamps and – yes – health or otherwise. So I'm reliant on the advice of people who do know that. And the advice that I ..... and I received advice that there hasn't been any catastrophic loss of swamps from the previous mining that has occurred in the area. And that's – on that basis, it doesn't seem like the small amount of additional subsidence, the perceptible

levels of subsidence would cause any catastrophic loss. But those – I defer to others with expertise in swamps to talk to that one.

MS CROSSLEY: So this goes to the interrelated aspects of the subsidence and the effect on the surface. So with no perceptible subsidence on the surface there are no – and no avenue for significant impact on base flows or the interaction with the – neither the groundwater under the swamps, immediately under the swamps, or no interconnected cracking to the swamps as a result of this mining. There's no opportunity for there to be any material impact on those swamps. The definition of catastrophic impacts on swamps is a definition that I understand David has used by the IESC, and that has – we've adopted that definition. But we can get back to you about that definition further, if you like, Peter.

DR WILLIAMS: That would help with that.

MS CROSSLEY: Yes.

DR WILLIAMS: Just a point of clarification, that's all.

MS CROSSLEY: Yes.

DR WILLIAMS: Thank you very much. Thanks. Thanks, Alice. That's all.

PROF CLARK: Thanks, Peter. Chris, any further questions at this point from yourself?

PROF FELL: Just a final question for my own benefit. How long does it take for subsidence to show through? Would it happen within the five years that you're mining, or would it be after that?

MS CROSSLEY: Ken.

MR MILLS: So subsidence occurs immediately there's – you know, coal is extracted, in the sense of normal subsidence. So if you've got ..... subsidence that occurs within the timeframe and incrementally with each extra bit of coal taken. In terms of subsidence associated with pillar stability, it's – in large pillars like these it's unlikely that you would ever see them become unstable. They are very large by comparison to the type of geometries that would lead to subsidence. Smaller pillars have been known to subside sometime after mining, but, certainly, the risks reduce over time. You know, typically, those circumstances require geological circumstances that don't exist at this mine.

PROF FELL: Thank you.

MS CROSSLEY: I am mindful of the time, Alice. Could we move onto groundwater?

PROF CLARK: I think so. Yes. Thank you, Barbara.

MS CROSSLEY: Thank you. And, David, you're going to pick us up with groundwater together with Noel.

MR HOLMES: Yes. Look, I think we've pretty much addressed this one here in that there's no risk to surface features, surface water features and catchment impacts associated with subsidence. With the pillar design, the factor of safety is in the pillar design. That's – so impacts associated with subsidence is assessed as being negligible from a project. In relation to the Bulli Seam in those areas, which haven't been collapsed or – sorry – that can't be confirmed as to whether they've been collapsed or not, the groundwater assessment is actually conservatively assumed that they have all collapsed. So that represents the worst case groundwater impacts as, you know, a fully goafed area would have a large cracking area above.

So the cumulative impacts predicted in the groundwater assessment are – assume that those areas have been fully collapsed. Moving on, so we've essentially gone through the peer review process, so that statement of Bruce's findings ..... subsidence monitoring, that will – so there's existing monitoring undertaken at the site in relation to Longwalls 4 to 6, and that will continue in accordance with the current extraction plans. Addition extraction plans will be prepared for the revised project in consultation with relevant agencies. These plans will also incorporate any additional monitoring and include performance measures for particular areas and that monitoring will include subsidence surface water, groundwater, the swamps, biodiversity features ..... features and public safety issues.

I think there was a question that was identified as to whether or not LIDAR or satellite technology or other remote-sense data would be used for subsidence monitoring, and that's definitely likely to be the case in this situation. Historically, it has been through land survey where survey lines are actually clear and monitored on a regular basis, but that includes sort of the clearing of vegetation and it includes safety risks associated with doing that in the bush. So remotely-sensed data is now up to a quality where it's probably better, more accurate, covers a much broader area and reduces a lot of those biodiversity and safety issues.

So that would – will be picked up in this new process. Extraction plans will include Trigger Action Response Plans based on those performance measures and the monitoring and, as we mentioned, there would be in seam, as well as surface monitoring of conditions to identify where subsidence may be an issue or may occur. So what's the next one? We've been through these, whether other mining methods were considered, monitoring methods. So impacts on substance – actually, one thing I will point out. There was a comment about the heritage impacts and the mining under the reservoir and whether there would be any impact.

My understanding is the concern regarding the heritage values were more in relation to potential subsidence impacts on the dam wall itself, which is a long, long way away from this is occurring. And the long-term stable pillar design precludes any

impacts on that dam wall feature. So that's sort of engineered out through the design.

MS CROSSLEY: Thanks, Dave. I think we've covered these issues.

MR HOLMES: Yes.

MS CROSSLEY: And we've covered this one as well, so on to the groundwater.

MR HOLMES: Yes. So the groundwater assessment was undertaken by Geoterra and GES, who did the original groundwater work for the earlier mine plans. Those models were sort of rebuilt and recalibrated based on comments from Dr Mackie during the PAC review process and the second PAC review process. The model was calibrated with more recently-collected data. The model was reviewed by Pete Dupan from Water New South Wales and also Will Minchin prior to being run. And Dr Noel Merrick peer reviewed the model outcomes and the assessment and the uncertainty analysis was peer reviewed by Dr Frans Kalf.

So the model had to take into – had to look at the significant existing depressurisation that's in the Wongawilli and Balgownie seams and that's a key feature of this area. And that's associated with past mining in Russell Vale and other operations. And that mining will have ongoing impacts that need to be considered in the context of the cumulative impacts from the project. The groundwater impacts associated with the revised project are effectively limited to the impacts associated with further depressurisation of the Wongawilli seam. It doesn't extend the zone of depressurisation into other overlying aquifer systems.

And the existing adit in the Wongawilli seam and the outcropping of the escarpment effectively constrains groundwater recovery within the Wongawilli seam. And that's an existing situation, so the project doesn't, I guess, exacerbate that, the impacts, associated with recovery. They're limited by that pre-existing adit and also the fact that the coal seam outcrops on the escarpment. And the – yes, so the – as the groundwater recovers, the only delay is – the only issue with the project is essentially there's a larger void area that has to fill up as the mine refloods following the end of the mine workings. Model results indicate that there isn't likely to be any observable drawdown in the water table, and that's a key issue for the surface creeks and swamps.

There's no observable impact on overall groundwater quality, no strata defamation or cracking above the coal seam, no perceptible reduction in stream base flow or stream water quality and no perceptible impact to upland swamps. There would be no inverse impact on stored water quality or quantity in the Cataract Reservoir and the revised project satisfies the mutual beneficial effect test for the Sydney drinking water catchment. Those findings have been confirmed through the peer-review process, which identifies that the model is fit for purpose. The peer review also confirms that the minimal impact considerations under the New South Wales Aquifer Interference Policy have been addressed in full.

And due to the existing substantial depressurisation caused by historical mining, the additional effects of the mining in the Wongawilli seam with the proposed first workings non-caving methods are considered minor. So the uncertainty analysis was undertaken by HydroAlgorithmics. This was requested by the ISC. The uncertainty analysis confirmed negligible drawdown predicted, even at the 90th percentile. So – and – sorry – that's of the water table in surficial layers, so they're the ones, as I said before, in contact with the local streams and the reservoir. So the lack of any drawdown with a higher degree of confidence is important there.

Even at the very unlikely to be exceeded level, the worst case impact attributable to the proposed mining is approximately 3.4 megalitres per year at Cataract Creek and the worst case predicted impact on Cataract Reservoir via a transfer of water from the storage to depressurised strata below the reservoir is less than one metre per year – sorry – one megalitre per year. So it's very, very small levels of predicted impact. Peer-reviewed findings confirmed those analysis by HydroAlgorithmics. This figure, which has been provided to the department and is in the assessment material, it shows the existing monitoring network and some proposed monitoring to be undertaken in relation to the project.

Effectively, it will – the ground it will – it will cover groundwater level quality and then also the pumping volumes out of the mine, which gives a – the pumping volumes out give a – allow you to understand what the mining flows are and help calibrate the groundwater model for future, you know, ongoing analysis. Monitoring also includes swamp moisture, swamp water levels and quality and surface water monitoring. Most of those systems are already in place and additional monitoring will be put in place for the swamps above the proposed mining area from a precautionary principle and TARPs developed around those.

MS CROSSLEY: Thanks, Dave. Was there anything else on groundwater, Gab? So - - -

MS ALLAN: Not really, just those - - -

MS CROSSLEY: The ..... questions.

MS ALLAN: Yes.

MS CROSSLEY: Do you want to deal with that question, Dave?

MR HOLMES: Yes, so there was a risk of groundwater inflow from the – to the Wongawilli workings from the overlying seams. The – there is already inflow associated with those workings, so the past – the mining of Longwalls 4, 5 and 6, the goaf area of that included a – created a connectivity between those three workings, so there is mine water inflow from the Bulli Seam and Wongawilli Seam down – and Balgownie Seam down into the Wongawilli Seam. But that won't – that's an existing situation and the project doesn't exacerbate that situation at all. But that is a groundwater linkage between the those three workings and those ..... seams.

MS CROSSLEY: Thanks, Dave. Is there any questions for either Dave or Dr Noel Merrick on groundwater issues? Any further questions?

PROF CLARK: Yes, I have one. We understand that the connectivity is already there with the current longwalls and that that will occur. Surely as you mine these bords out, that water will flow into these bords. And I think you referred before to over a longer term, once that's filled up, it's – it makes no difference as to whether or not you mine these – the rest of – the rest of bord and pillar or not; that once you get to that stage, it's at the same level. Have I interpreted what you've said correctly?

MR HOLMES: Yes, that – that's my understanding of the – the modelling and the – the – the conceptual model. Noel?

DR MERRICK: Yes, and in the long term the – all the voids underground will fill up, so you will get a recovery of water levels, groundwater levels, back up towards not quite to pre-mining conditions, because they will be constrained by the elevations of the adits. So whether – with or without this project, that recovery process will occur and will go to the same levels. It will just take a little bit longer with the project. There will be a delay. We're – we're talking of – of the first sort of hint of discharge at the adit will be about – I think it's about 2035, something like that. But then it takes about 100 years to get up to almost an equilibrium situation. So it's a very slow process.

PROF CLARK: And when it gets to that level in 30 years or I think one of the reports said 2057, when it gets up to that level, what will be the quality of that water coming out of that adit?

DR MERRICK: All right. It'll be very similar to the – the – the natural water quality underground, so it's – actually, it should be a bit more dilute than that, because you'll have rainfall recharge coming in at the top. So it'll be a dilution of the fresher water from above and the natural salinity of the water that's in the – in the voids.

PROF FELL: Can I again - - -

DR MERRICK: ..... sorry the water .....

PROF CLARK: Yes.

DR MERRICK: ..... with or without project.

PROF CLARK: Thank you, Noel. Chris, do you have any .....

PROF FELL: Yes, thank you. Thank you, Chair. While we're on the question, if you're obliged to put a lot of the waste into the ..... out sections, and this waste does contain ..... components, would you think for a moment about impact of that on the quality of the groundwater beyond end of mining?

DR MERRICK: Yes. That's a consideration, because material waste will be put back underground. There is a slide on this coming up, so - - -

PROF CLARK: Okay.

DR MERRICK: - - - it's probably best to defer that until the appropriate slide comes up.

PROF FELL: Thank you.

PROF CLARK: Okay. Peter, anything from you on groundwater at this stage or shall we continue? You're on mute, but I think you said continue.

MS CROSSLEY: ..... thank you, Alice.

UNIDENTIFIED MALE: Yes, thanks.

MS CROSSLEY: Dave.

MR HOLMES: No, did Professor Fell have another question.

PROF CLARK: Chris, did you have another question?

PROF FELL: Yes, a very quick one.

PROF CLARK: Yes, please.

PROF FELL: So you mentioned that there will be no requirement for dewatering of the upper seams during operation. I just wanted to confirm that, because that was an issue that SCT raised. And that is a fact.

MR HOLMES: No. I might actually – I think that's – I think there is actually a – there's no requirement to dewater the seams above the workings, so there's a couple of workings where there's ponded areas in sort of down dip sections of the upper workings.

PROF FELL: Right.

MR HOLMES: There's no requirement to dewater those sections, but there is ongoing dewatering of parts of the Bulli Seam over in the Wonga West area, which is associated with the pit top facilities and maintaining the ongoing operation of those areas.

MS CROSSLEY: It doesn't relate to this project.

MR HOLMES: No.

MS CROSSLEY: Not affected by this project.

UNIDENTIFIED MALE: Plus it – that's – that's stopped.

PROF FELL: Okay, thank you.

MS CROSSLEY: Okay. Moving on to surface water, Dave.

MR HOLMES: So surface water, so impacts associated with surface water over the mining area, I've sort of split this out into the – the mining-related impacts and then the pit top related impacts. The – so there's no mining beneath the Cataract Reservoir itself. That's not actual – there's no safety reasons or subsidence reasons to not do that, but the decision was made to actually pull up that stop – that standpoint there. There's no perceptible surface subsidence or significant interaction with groundwater system – with surface water systems. And no perceptible subsidence-related impacts to natural surface features, including the swamp, drainage lines, creeks, Cataract Creek, Cataract Reservoir.

The impacts to surface flows are solely associated with the drawdown or the depressurisation of the – the seams and the long-term recovery of the operations. And those impacts on surface flows are unlikely to be perceptible. And the projects impacts are less than the peak predicted under the existing approved operations that would have occurred due to the past mining of Longwalls 4, 5 and 6. So those impacts take a little bit longer to come into the system, because it's essentially the – sort of if you remember – you're taking the water away from here and then it slowly percolates through the coal seams to reach that – that point and it takes it – a while to materialise.

Those impacts of the project are very small, but there's a slight increase, just because there's an additional void and it takes longer to fill up. The pit top, so the pit top surface water management system is being upgraded to construct the approved Bellambi Gully Creek Diversion. The Bellambi Gully Creek Diversion does that form part of the revised project, however the revised project will utilise that upgraded water management system. It's noted that the existing dewatering is treated onsite, so the – look, with the – that question about the water quality in the groundwater system – sorry – in the mine and – and the recovered situation, the water is currently pumped out of that – the mine workings and treated onsite and discharged under current arrangements.

So there's already a – a process of treating essentially the same water that will be there and be coming from the adit in the future. Monitoring, water quality will be monitored on a regular basis and there's current monitoring undertaken and the results are shared on – with the public on the website and that's publicly – that's freely available for anyone to access. That process will continue. On the adit outflows, as we sort of mentioned, there's no new adits to propose, so it's the existing approved operations will result in the eventual flooding and spilling from the adit. And that will take some decades to occur. There's no change to the adit

outflows relative to existing approved operations, under than the delay in time until groundwater levels recover to that point.

Modelled adit outflows are predicted to be up to 0.3 megalitres per day. There's no change in the quality of that water relative to the existing approved operations or, for that example, the existing water, which is currently pumped – dewatered out of those workings and treated prior to discharge. And the existing mine inflows are currently pumped from those Wongawilli Seam workings, they're treated and discharged, if required, to Bellambi Gully Creek. That process will continue under the project. And – and the rates that are currently pumped and have historically been pumped are – are much higher than the modelled outflows.

I think it was significantly higher, particularly during Longwalls 4, 5 and 6. So it – following closure, it's reasonable and feasible to treat the water for – from the adit for discharge. That's – the existing operations demonstrate that. The modelled outflow rates are lower than historic – has historically occurred. Due to the revised project, not having any impact on groundwater quality relative to existing approved operations, there's no reason to suspect that the revised preferred project will result in any change to the added outflow water quality. And there's – there's multiple management options potentially available and – and reuse options of this adit water in the future, not just the discharge into Bellambi Gully Creek, but it is possible to treat those – that adit discharge water for discharge in the future, if that's the ultimate outcome for that water.

And the proposed consent condition requiring the adit water discharge management plan is considered to be an appropriate way to manage this process, so - - -

MS CROSSLEY: Thanks, Dave. Any – any further questions on – on water resources matters?

PROF CLARK: Yes. Just one for myself and then – Chris, actually, can you go first if you have any or Peter.

PROF FELL: I'm right, thanks.

PROF CLARK: You're right?

DR WILLIAMS: If I may, Alice.

PROF CLARK: Yes, thanks.

DR WILLIAMS: Sorry. I just presumed that the – the adit outflows, I think, on the last slide that we looked at, the – those outflows are – have been tested to – to comply with the – to meet the – the NorBE test under the – under the SEPP.

MR HOLMES: Well, they – they flow out in – the don't flow into the Sydney catchment, so they're not actually subject to - - -

DR WILLIAMS: So they're not subject to it. Okay, yes.

MR HOLMES: - - - the NorBE type principles.

DR WILLIAMS: Okay.

MR HOLMES: But they currently are treated to meet EPL requirements on the project site for the discharge into - - -

DR WILLIAMS: Yes, so the discharge there doesn't run out into the catchment anyway.

MR HOLMES: No. No, it flows out to the other – it's a - - -

DR WILLIAMS: The other side.

MR HOLMES: - - - couple of hundred metres down to the ocean, so - - -

DR WILLIAMS: Right, yes. No, not a problem. Not a problem. So just one other question, I think it's around about slide 53. And that was to – dealing – it dealt with pit top surface water management. And it talked about the water management system as being upgraded, I think, either to construct or to utilise. I can't remember the term that was used – the approved Bellambi Gully Creek Diversion. And that it's not part of this project. But I – but the project will utilise this particular water management system. Could you just explain to me the – the mechanics of how that works.

MR HOLMES: Yes, so essentially the – it – it forms part of the water management system. The Bellambi Gully Creek works essentially divert the clean catchment around the – the operations. Historic – there'd been an incident – well, currently, there's – it – it goes into a – a pipeline that goes – a large diameter pipe, which goes underneath the – the old product stockpile area and – and laydown area. And I can't remember the exact year, but there was a – there was a large rainfall even which actually washed through the stockpile area and took coal – like, overflowed the capacity of that system and took dirty water down the – the creek.

So this – the diversion was required under an earlier consent to – to fix that. Previously in the UEP, an upgrade of the existing system had been proposed, but now has been taken away and diverting back to the old – to the currently-approved diversion, so - - -

DR WILLIAMS: Okay. Thanks, David.

PROF CLARK: One – thanks, Peter. Sorry. One question there, David, or to whom whoever ..... is is it possible to seal the adits and thereby stop water outflow over the longer term? If so, what would be the management ramifications of that?

MS CROSSLEY: I will let you – unless Warwick, you want to deal with that?

MR SLY: Yes, look, if we actually put large bulkheads in that – in the open adits, the pressure builds up as the water fills up and then it just comes out through the coal. Because the coal is exposed all the way along the escarpment, so mines that have been sealed here 30, 40 years ago still weep water out of the – the exposed seams. So you'll slow it down, but it is, at the end of the day, is the water finds its way out.

PROF CLARK: That makes sense. So I guess following on from that, the water – water discharge management plan conditions, so how long, I guess, post-mining is Wollongong Coal responsible for the treating of that water?

MR SLY: Under our rehabilitation responsibilities in the final mine closure and – and removal of redundant equipment and – and returning the – the land and all the impacts of that back to the – to the agreed state is we'd have to address that in – in that process at that time. But obviously the – some of the features that we put in there may stay there as part of that control mechanism. But like I said, there are 18 mines that have been sealed on this escarpment and I'm quite sure they all weep a little bit of water out. I think over time it – it – it – there's groundwater. It's – there's no pollutants. There's nothing left. There's no, you know, impacts of machines operating underground or there like that.

But – but obviously our responsibility is under rehabilitation requirements under the legislation and they're current – there's draft legislation out now and we've been consulting with the department and – and Water New South Wales about – about those ongoing commitments and those sorts of things. They're part of our mine operating plan. We've got to comply with the law. That's a given.

MR HOLMES: There – yes. There are various – the security be held in relation to those rehab liabilities, which will necessarily have regard to the management of long-term adit management. But there's various legal mechanisms even once the mine's sort of closed up and rehabilitated, everything else that can be built into land ownership and management to require the ongoing – you know, manage the treatment of that into perpetuity and including, you know, trust funds for treatment works or – you know, improve even in Sydney and onsite water treatment systems that will just operate in perpetuity. It – it depends on how that water and the land uses will be worked. Because, you know, it's – it's quite feasible to treat this water for, if not a potable use, for an industrial use long term and, you know, remove the need for pressures on, you know, conventional water systems.

MS CROSSLEY: So simply there's a range of options there, Alice, that would need to be dealt with in the closure plan process, which go – goes from sort of permanent passive treatment to structural, you know, dam systems that are – are – retaining a – a long-term management process to getting a long-term agreement and process for beneficial use and everything in between, so - - -

PROF CLARK: Thanks, Barbara and David. It's ..... I – I think you've answered my question.

MS CROSSLEY: Thank you. All right. Well, let – if there's no further questions on groundwater, we will move on to the biodiversity element and I will just cover off on this quickly. The updated ecological assessment was undertaken Biosis – by Biosis. It has concluded, as I – I mentioned earlier, the risk of – with the risk of subsidence-related impacts on sensitive environmental features being removed by the mine design. We've talked extensively earlier about the negligible risk of impacts on the surface, including the upland swamps. And there go, there is negligible risk of impact to the threatened species that occupy those habitats.

The – that said, there is an extensive program of ecological surface water and groundwater monitoring in place that most recently has been dealing with the impacts of mining on Longwall 4 to 6 and, as we spoke about earlier, the monitoring program, including the biodiversity monitoring program will be reviewed and updated as part of the upland swamp monitoring program, which is included in the ongoing extraction management plan process. As Dave mentioned earlier, from a precautionary principle point of view, even though no perceptible substance impacts are predicted, there will be a program of verification as – in relation to the upland swamps moving forward.

Moving on, Gab. There's a – a suite of monitoring in place and also there's been ongoing monitoring in relation to previous undermining of swamps, including undermining of – at levels of subsidence that exceed what's – what's proposed here and – and indeed some material subsidence and that that monitoring hasn't determined if there's been any significant detrimental impacts on the swamps. Moving on, Gab. I've got – I'm now going to move on to the summary of impacts and proposed measures, management measures, as it relates to the surface facilities and to cover off on some of the – some of the broader issues. Next, Gab.

MS G. ALLAN: All right.

MS CROSSLEY: If – I'm going to hand over to Gab to take us through these.

MS ALLAN: Thank you. Gabriella Allan, principal environmental consultant with Umwelt. I will touch on the surface facilities aspects. One of the key issues historically with this project and with Russell Vale Colliery in general has been noise impacts on the surrounding community, which has encroached quite close to that Pit Top facility. A noise assessment has – was undertaken for the revised project by Wilkinson Murray in accordance with the noise policy for industry and the EPA has reviewed and confirmed that that noise impact assessment satisfactorily meets their guidelines. The assessment included a quite extensive iterative process of exploring feasible – all feasible and reasonable noise mitigation measures to achieve compliance with the Noise Policy for Industry targets.

And some of those features range from both the redesign of the Pit Top to significantly reduce predicted noise levels from the project in comparison to historical operations. The – this has included relocating some of the noisier infrastructure to more shielded locations. New – a new and revised noise barrier and bund arrangement around the Pit Top and acoustic treatment of new plant and equipment and existing plant and equipment. So that includes things like enclosure of the coal-processing plant and secondary sizer, acoustic treatment of the surge bin and conveyors and attenuation of some of the noisier mobile plants, such as the dozer.

In addition to those design features, there's – implemented the restrictions on hours of operation, which Warwick has touched on earlier. So surface facilities and product transport would only be undertaken during the daytime period, Monday to Friday and on Saturdays. There would be no work on the surface on Sundays or public holidays. That is all with the exception of the activities associated with underground mining, which operate 24 hours and that will involve the ROM coal runout from underground to the ROM stockpile 24 hours a day. As Warwick mentioned, there is provision – seeking provision to operate into the evening period Monday to Friday under exceptional circumstances.

And that has been assessed as part of the noise assessment. Part of that operation into the evening period required further – further controls on hours of operation for some of those noisier mobile plant. So they are only able to be operated in the daytime period. Some other measures around truck noise were to implement an onsite parking area for trucks that may arrive prior to the commencement of operations. There is – previously those trucks would park in residential streets until gates opened, causing disturbance to the neighbours. The – there is also voluntary speed limits for trucks both onsite and trucks using Bellambi Lane.

So the results of that assessment for operational noise with all these additional controls in place, the revised project will comply with the operational noise trigger levels at surrounding residences during the day evening and early – early morning shoulder period. Under the – the only exception we have is during adverse weather conditions there are predicted to be potential minor exceedances, that's one to two decibels, of the criteria for a very small percentage of night – winter nights at up to 15 residences around the site. The Noise Policy for Industry and the VLAMP are both defined a one to two decibel exceedance as negligible – as a negligible residual impact that would be indiscernible to the average listener.

Traffic noise was also considered for trucks transporting coal along Bellambi Lane to the port and the assessment found that the noise from those trucks complied with the New South Wales Road Noise Policy. Construction noise. Their – the construction involved in the project primarily is around the construction of the noise bunds and barriers, as well as the additional plant items within the surface infrastructure area. The noise associated with that bund construction particularly resulted in some short periods where noise levels triggered the need for additional noise management measures. That included – that includes things like scheduling activities to try and

minimise impacts, notifying neighbours of the duration – nature and duration of works, using quieter equipment and methods where possible, complaints-handling procedures and also monitoring.

All of these aspects will be addressed and reflected as – in the proposed construction noise management plan, which is included as – in the draft conditions as a requirement. In terms of monitoring, Wollongong Coal operates two long-term noise monitors on their site. These will continue throughout the project. Also to address the potential for construction noise impacts, a commitment for monitoring when construction is occurring within 200 metres of a residence has been proposed by Wollongong Coal. There was a – there was a query from the IPC about whether or not the noise mitigation measures proposed reflected contemporary noise mitigation.

And, I guess, the response to that would be that as part of this process there was the need to – to come up with a mitigation arrangement that resulted in an extensive reduction – a significant reduction in noise levels. Previous versions of the project were predicting exceedances in the order of nine to 13 decibels at surrounding neighbouring properties and Wollongong Coal essentially gave us the remit to seek to eliminate those exceedances. So through that process, we have – we – we, being Wollongong Coal, ourselves, and Wilkinson Murray, who felt we have explored all reasonable and feasible mitigation measures options to come up with the result that we have come up with.

And that has been a significant iterative process to do that. There – the EPA did raise concerns about the original – about our – the initial design presented by the revised project for bund arrangement, because there was an extended period of bund construction works. To address this, Wollongong Coal amended that bund arrangement to reduce the construction timeframes and ensure that substantial barriers were in place as quickly as possible and in place prior to operations commencing. The EPA then subsequently reviewed that and were satisfied that it addressed their guidelines. Is there anything further – any further questions or clarifications on noise?

PROF CLARK: Chris? Chris, do you have any - - -

PROF FELL: I'll just ask one. Presumably, you still have a fleet of vehicles leftover from when you were mining back in 2015. Are they still around? Do you plan to use them or would they meet modern noise specifications?

MR LIDBURY: The – the .....

MR SLY: In regard to what, Chris? The underground equipment or the - - -

PROF FELL: No, aboveground.

MR SLY: No, we don't have any dozers or loaders or anything here.

MR LIDBURY: Yes.

MR SLY: What we do is we – we subcontract that and they, under the contract, they – they've got to meet the design criteria - - -

PROF FELL: Okay.

MR SLY: - - - and not .....

PROF FELL: That's very helpful. Thank you.

MR SLY: But we don't own the fleet.

PROF FELL: Okay.

PROF CLARK: Peter, any questions there regarding noise?

DR WILLIAMS: No, that's fine. Thanks, Alice. Ta.

PROF CLARK: Okay. I had one question that I don't think you covered. You anticipated the others though. And that was – there is a – I guess, a request or – or there's talk in the reports around trucks needing to be running along Bellambi Lane when there's exceptional circumstances, either at Port Kembla or otherwise. You – you've referred to those as being very rare. Have you looked back over the last 18 months, two years, to give us some idea of what rare is? I understand that you'll be needing – that there is – will be a requirement to apply for ..... to do that, but I'm still wondering how often you think that might be.

MR LIDBURY: Yes.

MR D. VYAS: Yes.

MR LIDBURY: Denvendra.

MR VYAS: I'm Devendra Vyas from Wollongong Coal. We had a – we had one such incidence in the last couple of years of having an exceptional circumstance, and that was relating to an accident at PKCT, which involved a death of their employee onsite and they had shut down the port till investigations were completed. So – and – and that impacted on the transportation of coal to the port. But apart from that – because last time when we had this incident, we had to campaign to move the coal later on once the port reopened and put in more trucks and make extra efforts. So those are the sort of unexpected conditions that we have catered to for this – under this guideline. Under this .....

PROF CLARK: Thank you. Thank you for that.

MR VYAS: Thank you.

PROF CLARK: I don't think we have any further questions on that aspect .....

MS ALLAN: All right. I will get moving. Air quality. An air-quality assessment was undertaken by ERM. Again, the EPA has confirmed that that assessment has satisfactorily met their guidelines. The assessment predicts no exceedances of relevant air-quality criteria at any of the sensitive receivers surrounding the site. The assessment considers a range of air-quality control measures, which are either in place already or will – are proposed to be in place for the proposed project. That includes enclosure of conveyors and coal transfer points and enclosure of the coal processing plant. Automated water sprays that are triggered by weather conditions on stockpiles and exposed areas.

Sprays during construction of noise bunds, water – water carts on haul roads, revegetation and rehab of disturbed areas and modifying or suspending activities during adverse weather conditions. Monitoring. Again, Wollongong Coal do already undertake air-quality monitoring onsite. They have two continuous air monitors onsite that monitor both PM10 and PM2.5. And they also have an onsite weather station that will allow them to implement those proactive and reactive control measures. A traffic and transport assessment was also undertaken by Transport and Urban Planning. The revised project will generate traffic levels that are similar to the historical operations, previously approved operations onsite. They have a similar production level.

The project – the assessment found that the project is unlikely to result in any adverse impacts on the performance of the local road network or on road safety and that the traffic conditions on the road and network are predicted to remain satisfactory into the future with the revised project. We have touched on each of those traffic controls that the – that Wollongong Coal have put in place with the exception of the fact that a road maintenance contribution will be required to be paid to council for the ongoing maintenance of Bellambi Lane. Reject management. So pick up on the earlier conversation around reject management, there will be approximately – with the installation of the new coal processing plant, there will be approximately 200,000 tonnes per annum of reject material.

This is rock material that is located within the Wongawilli Seam. And it will be separated by the coal processing plant via a dry separation process. There are no chemical treatment or wet processing processes involved with that separation. That – the reject material will either be preferentially sold for beneficial use or placed underground in the – in the workings. No aboveground in placement is proposed. We make some note here about the fact that groundwater inflows to the workings are currently in permanent contact with this material while it's in situ and the chemistry of the groundwater in part reflects the ongoing contact and saturation of this material.

Geochemical testing has been undertaken of the reject material that is within the current Russell Vale rejected placement area. And that testing indicates that the material is likely to be non-acid forming and have a high factor of safety with respect to potential acid generation and is unlikely to adversely impact on water quality. It's

also been assessed against the EPA standard for beneficial use and it complies with that standard. Ongoing – Wollongong Coal is committed to ongoing monitoring of geochemical testing and monitoring of that reject material to – to identify any material that would not be suitable for underground disposal and to identify appropriate measures for the disposal of that in the unlikely event it was found to be unsuitable. Was there any questions about that?

PROF FELL: Alice, I might, if - - -

PROF CLARK: Yes.

PROF FELL: You have a hold-up ..... 1500 tonnes or thereabouts.

MS ALLAN: Yes.

PROF FELL: And I wonder if, in fact, it gets knocked back ..... the ..... requirements for some reason, is that sufficient hold-up in the treatment. I mean, can you get it into the mine fast enough if you get knocked back for on-surface use?

MS ALLAN: Warwick, well – would you like to answer that one?

MR LIDBURY: There's several ways. Is – if we put the coal – the dry processing plant in, that's fine, but we have the facility to sell the coal direct without processing, so if we've - - -

PROF FELL: Yes.

MR LIDBURY: - - - got a stockpile or if the refuge is not ..... or whatever, then we'll sell the coal as is and it'll go to our customers as is.

PROF FELL: Okay, thank you.

MR LIDBURY: It won't be the obligation to put any refuge underground or treat the refuge at all. Okay?

PROF FELL: Right, thanks.

MS CROSSLEY: It just impacts the quality of the coal that you can send - - -

MR LIDBURY: Yes.

MS CROSSLEY: ..... yes. All right. Thank you. If there's no more questions on that.

PROF CLARK: Yes, there is, Barbara. I think Peter has a question.

DR WILLIAMS: Just one brief question, though, thanks, Alice. Just in relation to the – to noise and – and hours of operation, there was a couple of slides ago showed the – the hours of operation, I think, and – and the ability to be able to change as permitted to proposed truck movements for 6 pm to 10 pm. I – but I also noticed in the department's report that they have a condition of consent relating to hours of operation of surface facilities and product transport and any variations required for those hours of operation were subject to the approval of the secretary. The proposed condition I see from the department relating to truck movements to extend to 6 to 10 pm doesn't that have that requirement subject to the approval to secretary. But are there any comments at all on – on that aspect? That one aspect of the – the – of the hours of operation requires approval of the secretary, but the – another aspect doesn't.

MS ALLAN: I – my comment was – sorry. Sorry, Peter.

DR WILLIAMS: I think ..... it depends how quickly you have to respond, I guess, also to unexpected closures or disruptions to the port, but there would certainly be an anomaly in the conditions between variations for hours of consent – of hours of operation. Sorry.

MS ALLAN: I guess my comment to that would be that the trucks wouldn't be able to operate without the surface facilities being able to operate. They are required to be loaded and – in order to transport coal.

DR WILLIAMS: Yes. Yes. So it's – in a sense, it's – it's – once you get the approval, if you don't get the approval for the other, you – you can't move the trucks anyway. Okay. All right.

UNIDENTIFIED MALE: So if we didn't have the approval, we wouldn't be doing it.

DR WILLIAMS: We wouldn't be doing it. That's a good – that's a good simple answer. Thank you. Thanks a lot.

UNIDENTIFIED MALE: Thank you.

PROF CLARK: ..... in the interests of time here, I – we're – we've got more questions and I'm sure you have more presentation. We're able to go over time, but I'm not presupposing that you are. How much longer do you have for the presentation?

MS ALLAN: I – I believe that we've probably got 15 minutes most to remain in the presentation, and I'm going to speak for everyone else and say that we've got nothing more important to do than to be – to – to be here for you. So we're able to extend our time at your - - -

PROF CLARK: Can I just - - -

MS ALLAN: - - - request.

PROF CLARK: Thank you. Thank you for that. Can I just confirm with my panel they are able to extend their time here as well. Chris, I - - -

PROF FELL: No problem.

PROF CLARK: And Peter?

DR WILLIAMS: That's fine. Thanks, Alice.

PROF CLARK: Thank you.

MS CROSSLEY: We may need another half an hour all up, perhaps depending on how many questions you've got, so - - -

PROF CLARK: Brad, is this okay? You're on mute.

MR JAMES: Apologies. It's fine, Alice. Just mindful of the other meetings we have this afternoon. Yes.

PROF CLARK: Is half an hour going to work, Brad?

MR JAMES: Yes. I think that's – that's okay, Alice.

PROF CLARK: Thank you. Okay.

MS ALLAN: We'll step through – thank you, Alice. We'll go – we'll step through these next slides fairly efficiently and then rely on the panel to – to ask any questions and we can look back to, if we need to.

PROF CLARK: Thank you.

MS ALLAN: ..... okay. A social impact and opportunities assessment was undertaken for the project by Umwelt and that was based on an extensive consultation program and the outcomes of the environmental assessment. There was a range of engagement mechanisms, which I'll touch on in the next slide. In phase 1 of – sorry – I just need a drink of water.

MS CROSSLEY: Gab, I'm going to keep – in the interest of time, I'm going to keep going. In phase 1, which happened in April/May 2017, the Umwelt social team did an extensive consultation with the surrounding stakeholders. We distributed it, the project in fact sheet ..... to around 1200 surrounding properties. Direct contact – made direct contact with about 158 stakeholders and 34 individuals agreed to conduct interviews. And then in phase 2, in May 2019, which was designed – the first phase was designed and – to understand at that point in 2017 as we were undertaking new studies and going through further project requirements to get an

update on the issues of concern to community and key stakeholders to make sure that we were focused on those as we went through that process.

And then May 2019, it was about providing the detailed findings and assessments back to community stakeholders and to seek their feedback on mitigation measures. Another project information sheet distributed to around 1500 surrounding properties, meetings with key agencies, meetings with key community groups that had expressed an interest and – and made themselves available for meetings at that time and a community drop-in session on 25 May, an all-day session advertised in the local newspaper and an invitation emailed to around 1500 surrounding residences that was quite well attended at that time as well. How are you feeling, Gab? Should I keep going?

MS ALLAN: I'm back.

MS CROSSLEY: Okay, go.

MS ALLAN: During phase 1, the – the key issues that were raised in that first phase were – focused really around the amenity impacts associated with surface operations, issue of dust and noise and, in particular, heavy vehicles, followed by issues – environmental issues around impacts on the water catchment and, you know, subsidence impacts associated with that. During the second phase of consultation, there was a slightly different focus of the issues that were raised. They – the key issue identified there was the environmental issues, issues of climate change, a general – a general opposition to mining within the water catchment and potential impacts of that.

There was also a significantly greater recognition of ..... positive economic benefits of the project through local employment and contributions to the community. Also raised in that phase were issues around governance and Wollongong Coal as a proponent and then, to a much lesser degree, issues around the operation, surface operations, and amenity impacts of those. An economic assessment was undertaken for the project by Cadence Economics. It identified a substantial net benefit to the local community in Wollongong and New South Wales through capital expenditure and the creation of jobs: 205 full-time operational jobs and 22 construction jobs.

The net benefit of the project to the local Wollongong region was calculated to be $17 million and the net benefit to the State of around $174 million. Now, this slide here just touches on some of the other clarification requests that were sent through from the IPC. The first one was around the EPBC referral confirming that, yes, an EPBC referral has been lodged for the revised project. That has now been determined to be a controlled action and well be assessed by means of a public environment report. Wollongong Coal is currently consulting with the department in relation to the guidelines for that public environment report.

We do note that the determination of a controlled action and assessment method was made by the department without the benefit of the peer-reviewed pillar failure risk

assessment, which is – which is integral in – in confirming the assessment of predicted imperceptible impacts on matters of national environmental significance. So that is one aspect that will be the focus of the public environment report based on our initial consultation with – with the department. There was a – there was a general question around mine closure plans, rehabilitation and business closure costs. Was there something specific from the IPC in relation to that? Otherwise, I can refer back to the – the general – the general discussion that we've already had around the ongoing reserves that will be in place and that – the fact that there's no immediate plans for closure in the fact it – insofar as they're seeking further approvals.

PROF CLARK: There – Gabrielle, there was that – that's covered the issue that I was looking for there. Either Chris or Peter, did you have anything else to ask around that area? No?

PROF FELL: No. No, thank you.

DR WILLIAMS: Alice? Sorry. I've just – sorry. Peter Williams again. Sorry. Gabrielle, just in relation to that mine closure question we had, it was just a – just to get comment on I think there was a figure stated in the – the department's final assessment report of – I think they call it business closure costs of – I think it was $215 million. I just wanted some explanation of what was meant by "business closure costs," whether they were direct costs associated with the mine or were they broader costs or – but the – the – just that there was that figure that was stated in the .....

MR LIDBURY: I'll – I'll answer that, Peter.

DR WILLIAMS: Thank you.

MR LIDBURY: No. I – I know the answer to that. That was a miscalculation. Was it?

MS CROSSLEY: Can I suggest we get back to you.

MR LIDBURY: Yes. We'll get back to you on it.

DR WILLIAMS: Yes.

MS CROSSLEY: Back to you and I'll take that one on notice. Thank you.

PROF CLARK: Thank you.

MS CROSSLEY: Just to be sure we're answering the right question.

DR WILLIAMS: Sure.

MS CROSSLEY: Thank you.

DR WILLIAMS: Thanks .....

MS CROSSLEY: No. More from our point of view, sorry, Peter.

DR WILLIAMS: Yes, yes, yes.

MS CROSSLEY: Yes. Yes.

DR WILLIAMS: Just that the number was there and there's explanation to it, so - - -

MS CROSSLEY: Sure. We'll take that on notice - - -

DR WILLIAMS: Yes.

MS CROSSLEY: - - - and get back to you. Thank you.

DR WILLIAMS: Thanks, Barbara.

PROF CLARK: Thank you.

DR WILLIAMS: Thank you.

MS ALLAN: And in relation to the commission's query around consultation on the draft conditions, Wollongong Coal was consulted on those draft conditions. There were no significant issues raised. Some feedback was provided, but nothing – no significant issues identified and Wollongong Coal consider that those draft conditions are appropriate.

PROF CLARK: Thank you, Gabrielle. That anticipated another question I had there. Peter, did you need any further loop back around to the EPBC .....

DR WILLIAMS: ..... just – just – it's just a query. It's nothing ..... but I just feel that the – or it appears that the referral to the Commonwealth department was very late in the piece. Well, I think it was something like the 5th of August or something, 2020. Is there a reason why the referral was so late?

MS CROSSLEY: There was an original referral, Peter - - -

DR WILLIAMS: Right.

MS CROSSLEY: - - - from that. Our initial indications were that we were going to be able to modify the assessment in relation to that original referral and that - - -

DR WILLIAMS: Right.

MS CROSSLEY: - - - proved not to be the case. And then there was the complexity of the transition was part 3A to part 4.

DR WILLIAMS: Okay.

MS CROSSLEY: The ..... effect of all of that process meant that the – that the department confirmed that we had to lodge a new referral. And by the time we resolved that, we weren't able to integrate it with the State process.

DR WILLIAMS: Look, that – that answers the question nicely. No. Thanks, Barbara. Thank you.

MS CROSSLEY: Thank you.

PROF CLARK: For my part, I had no further questions. Chris, can I ask you if you have any further questions.

PROF FELL: On what aspect? Any?

PROF CLARK: I – I've assumed, I'm sorry ..... slide.

MS CROSSLEY: Yes. Yes. We're – we're at the conclusion slide, and I'll just let – if you can go to that slide, Gab, but essentially it's – you know, we've covered these points, so I won't go back over them. And - - -

PROF CLARK: Okay.

MS CROSSLEY: - - - back to you for any questions at all.

PROF CLARK: Thank you, Barbara. Chris, any – any final questions here?

PROF FELL: Look, I had a question about the bushfire and comments made by the Rural Fire people, which were concerned about truly bush burning. I just figured you had a couple of pretty large stockpiles of coal onsite and residential property quite close. Do you worry about that? Have you got plans to handle that situation if you've got a stockpile of coal burning?

MR SLY: The – the only area that's close to the – to the bush line is the old rejects and placement area. And we're in the process of closing that now and we'll be rehabbing it to its final landform and that. The – the coal stockpile, the 30,000 tonne run of mine and a 14,000 tonne product stockpile is way down the bottom on the lowest level. And you'll see that when you're here on Friday. Our coal has an extremely low propensity for spon comb. And – and under it, you'd have to have a pretty hot bushfire – there's no bush down there – to actually get that coal to burn. It – it's – it's – it's difficult to burn, but when you get it going in a blast furnace, it does the job and the chemical reaction. So - - -

MS CROSSLEY: So – and the – the other part of that process – sorry to interrupt, Wayne – is also that - - -

MR SLY: .....

MS CROSSLEY: - - - it's in a controlled environment with – for dust control with water sprays and it's maintained in a moist condition as well.

PROF CLARK: Yes.

MS CROSSLEY: So not just for this site, but for all coal-mining sites, it's very relevant in – in a bushfire-control context as well.

MR HOLMES: If I can add one more factor as well, is that it's an easterly-facing slope and it's actually – most of the vegetation in that area is either very wet sclerophyll or rainforest. And so it has a much lower propensity to burn and – and if it ever did burn, it'd burn at a – quite a slow rate, so it's not a – it's not a high-risk bushfire environment to start with, I guess.

PROF FELL: Thank you. That's – that's useful information.

MR SLY: We – we run our hazard reduction program every year. We – we work with the RFS and that and, you know, bushfires are a – a serious issue in this part of the world and – and we're aware of our responsibility, including any infrastructure in the catchment, so every site's treated the same. So it – it's – it's a high risk anywhere in Illawarra, so it's an important part of our safety systems.

MR LIDBURY: We – we also ensure our APZ zones are cleared yearly and we also work closely with rural bushfire brigade in regarding to their bushfire trails and maintaining their bushfire trails on our land for them to have access.

MS CROSSLEY: All right, thank you.

PROF FELL: Thank you.

PROF CLARK: Any other questions, Chris?

PROF FELL: No. I'm right, thanks.

PROF CLARK: Peter. Okay. I think that's a wrap from us. No further questions here. Barbara, over to you. I'm assuming, Brad, you have copies of the slides.

MR JAMES: Yes. Yes. I've got a copy of the slides, Alice.

MS CROSSLEY: Thank you. Look, nothing else from us. We've raised those points in conclusion. We raised them at the start of the – the presentation. As we've – we've spoken about, we believe that the revised project has addressed the residual

issues, material issues that were raised during the previous processes and then in submissions. It's a – it's a – a – a mine design that has mitigated risk by design, rather than by ongoing adaptive management. And it has eliminated the potential for significant impacts. Indeed, all impacts on the surface have been peer reviewed and assessed as being imperceptible and any risks are very rare to negligible.

It addresses the key issues raised by the Water New South Wales and other key agencies. It has been an extensive program of improvement and to ensure sustainable development in – in this – in this region. Wollongong Coal, as we've said, have committed to ongoing bord and pillar methods. It's a – it's a very significant commitment in relation to not only the current operations, but also in relation to future operations. The revised project will produce a significant net benefit to New South Wales and ongoing operational employment and in an important – a very important transitional approval as it relates to providing the potential opportunity for access to substantial future resources of a high-quality hard coking coal. Thank you.

PROF CLARK: Thank you. Thank you everyone for your time this afternoon.

RECORDING CONCLUDED **[2.12 pm]**