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INDEPENDENT PLANNING COMMISSION

APPLICANT MEETING

RE: MANGOOLA COAL CONTINUED OPERATIONS

PROJECT SSD 8642

PANEL:	**PROFESSOR SNOW BARLOW, Chair** **PETER COCHRANE**
OFFICE OF THE COMMISSION:	**BRADLEY JAMES** **STEPHEN BARRY** **MARGARET MASON**
APPLICANT:	**BRIAN PEASE** **JASON MARTIN** **TIM WALLS** **NICK SLATER** **NATHAN LANE** **JOHN MERRILL** **DANIEL SULLIVAN** **GRANT HARRISON**
DATE:	**10.34 AM, TUESDAY, 23 FEBRUARY 2021**

PROF BARLOW: Well, good morning, all. Before we begin, I would like to acknowledge the traditional owners of the lands from which we meet today and pay our deepest respects to their elders, past, present, and emerging. Welcome to the meeting today to discuss the Mangoola Coal Continued Operations project. It's a State significant project, currently before us in the Independent Planning Commission for determination. The Mangoola Mine is an existing open cut mine located 20 kilometres west of Muswellbrook in the upper Hunter Valley of New South Wales. The project involves the extraction of an additional 52 million tonnes of ..... mine coal by establishing a new open cut mining area known as the northern extension area. My name is Professor Snow Barlow, and I am the chair of this IPC panel. And joining me on the panel is my fellow commissioner Peter Cochrane.

MR COCHRANE: Good morning.

PROF BARLOW: And joining me from the office of the Commission is Brad James and Steve Barry. Could I just hand over to you in Glencore for introductions with your group that's here today.

MR PEASE: I'll introduce everybody. So my name is Brian Pease. I'm the project manager for this project. I work for Glencore Coal. On my right-hand side is John Merrill. John is the executive manager for Umwelt (Australia) under the environment. And Grant Harrison is also in the room. Grant is going to be coming ..... with work on this project and is also a project manager. Grant is sitting in just out of interest for today. And I have Jason Martin. Jason is the approvals manager on the project. He also works for Glencore Coal. And he has worked on this project for a period of time and directly with myself. We have Nick Slater. Nick is the operations manager for Mangoola Coal. And then we have, adjacent to him is Nathan Lane. Nathan is the environment and community manager for Mangoola Coal. And then, lastly is Daniel Sullivan. Daniel is the principal environment consultant and also works for Umwelt ..... in order to get an Environmental Impact Statement ..... for the approvals process.

PROF BARLOW: Thank you. I don't know whether you can turn your audio up a bit. Now, I know you're working off an octopus in the middle of the room, but it was just a little bit garbled and, perhaps, if you turn it up, we'll get better clarity of our discussions. It would be handy.

MR PEASE: ..... is that any better?

PROF BARLOW: Okay. Well, we will just ask for clarification if we can't hear you. In the interests of openness and transparency and to ensure that the full capture of information, today's meeting is being recorded, and a complete transcript will be reproduced and made available on the Commission's website. This meeting is one part of the Commission's consideration of this matter and will form one of several sources of information upon which the Commission will base its final decision. It's

important for commissions to ask questions on you, the attendees, and to clarify issues where it is considered appropriate.

If you are asked a question and are not in a position to answer that, please feel free to place that question on notice and provide any additional information we would request, in writing, and we'll then put that up on our website. And I also request all members in the meeting today will introduce yourselves before speaking for the first time and that all members to ensure that they do not speak over the top of each other to ensure accuracy of the transcript. We'll now begin.

And thank you, all, for joining this meeting. We've obviously read the EIS and the Department's assessment report. And we have some questions for you. And we thought we might start on the noise issue. And the first question is really about that. Has the consent that you are seeking, will – if given, will consume the original consent and there will be one consent for the whole of the mine operations. Now, the question we have, then, is, will the mitigation and acquisition rights of receivers affected by this project, will that carry over until – into this new consent? Will they maintain their rights of mitigation and acquisition?

MR PEASE: Professor Barlow, it's Brian Pease. I – we've prepared a presentation that – the intent was to address the agenda items.

PROF BARLOW: Yes.

MR PEASE: Would you like us to go to that presentation and work our way through that?

PROF BARLOW: How long will it take; do you know?

MR PEASE: Potentially, it could take the hour. But I'm sure we could address your key points in a fairly rapid manner, if we can. So would you like us to bring that presentation up on the screen?

PROF BARLOW: Yes, but can you move through it as quickly as possible, because we may have supplementaries for you as well, and we would like to continue and have some time for further discussion at the end of presentation.

MR PEASE: Okay. All right. Well, can you bring it – yeah – full screen. So you should be seeing a presentation on the screen in front of you.

PROF BARLOW: We can.

MR PEASE: All right. So the first part of the presentation was really an introduction into the project. So I think, in your opening, you've already covered that off. So we might go straight to the noise section.

PROF BARLOW: Thank you.

MR PEASE: So we did have some words in there around the existing operation, but from your opening address, it's obvious that you understand that. There was a slide there you may read separately to this meeting that just – on the current environmental performance. And then, obviously, we were going to cover off from the project overview. Again, I'll jump over the top of that and go straight to the noise question. So if you don't mind bearing with me, if you let me go through just these couple of slides, and then we might come back to your question if we haven't answered it.

PROF BARLOW: Thank you.

MR PEASE: So, from an existing operation, Mangoola has an extensive real time and attended noise monitoring program around the site. In addition to the monitoring, there's a number of strategies implemented on site to reduce or control the noise output from the operation. So they have a predicted metallurgical forecast that is considered twice daily, noise attenuated equipment – so being a young operation, all the mining equipment, so – is actually already noise attenuated from engine and exhaust perspective. And they've also modified equipment on site over time to also looking to reduce the noise output. So there's a picture there of an Armadillo Dozer, so where the tracks are partially covered to try and reduce some of the noise output from dozers in particular. And they also have rubber-tyred dozers on site.

Mine scheduling, including day and sheltered night dumping locations. So what that means is the operation has a number of options as far as waste dumps that they can go to in different weather conditions. Real time monitoring network where they ..... alarms. So there's levels that key operational people are made aware of, that they may be approaching levels that may be seen to be unacceptable or against the criteria. And there's silent horns on the heavy equipment. So that's a radio induced horn – so there's no external horns – to notify the operators to do certain activities. Enclosed coal preparation plant and load noise idlers on – or rollers on conveyor systems, and broadband reversing alarms; again, that's a type of alarm for reversing of equipment to reduce the impact of noise. Real time monitoring is predetermined trigger levels and is used to manage operations within the compliance links. Operations are modified or equipment is shut down in response to noise alarms. So that does happen on site. An existing monitoring network is updated and expanded to comply with the recommended conditions.

As far as the project itself, there's been a range of mine plans assessed to – and particularly in the early phases of the planning for this project. There was a number of options and constraints analysis done to look at minimising our noise impacts. And the outcome of that is – for the project, is that there's a stage transition of mining equipment from the existing operation to the project area. And we can talk about that a little bit later on. But equipment is spread between the existing operations and the project area. So not all mining equipment. And the operation currently has five large excavator fleets serviced by a number of trucks for each of those excavators. And that equipment is intended to be spread between the operation – existing operation and the new project area.

But from 2026 onwards, mining operations are in the project area only to the north of Wybong Road. There's – and there's a reduced intensity of mining in that project area. So what that means is that the operation will go from five excavator fleets down to three in the northern area. So where they currently operate five in the current approved mining area, it will go back to three in the project area, with the option to be able to operate one of the other two that are not in operation for times of maintenance and maybe – potentially when the weather allows it – the conditions allow that. Mostly, the intent is three excavators only.

Strategic location and configuration of core roads: there has been a lot of work done in that. Shielding operations, as mentioned previously, for the waste or in placement areas. Continued use of the sound attenuated equipment in the north. Construction of high-level noise buns along haul roads where appropriate to try to reduce noise levels. And then, ongoing proactive and reactive management systems around predicted metallurgical systems and noise alarms. And all those controls will continue going forward.

As far as the noise impact of private receivers, the noise impact assessment completed for the EIS, and even prior to that in the early phases of the mine planning, the noise impacts have been considered around the VLAMP. So the outcome of our assessment and all the planning that we've done is that eight receivers are included in the acquisition zone for noise. Of those, ID25, which is to the south of the operation, is in the existing consent but will be maintained in the acquisition, although it's not impacted due to the – on the acquisition levels due to the project. And there is another receiver that's also 83, which is to the west, is also in the current operations acquisition zone, and it's also – but it comes into the project, so there's actually six new receivers under the project.

22 receivers are included in the mitigation zone for noise, including the commitment to maintain the mitigation for four receivers, despite those not being impacted above mitigation levels under the project. And mitigation measures are designed to reduce noise impacts and include such things as installing and maintaining air conditioning, installation of window double glazing, wall and roof installation, among others.

There's a commitment to maintain noise mitigation at other receivers that currently receive treatments, despite not being impacted above mitigation levels due to the MCCO project or where impacts are reducing over time. So Mangoola voluntarily maintains mitigation for a number of other receivers, even though they don't fall under the VLAMP criteria. And Mangoola has identified a number of nearby receivers to the north, and we have approached those landowners for a voluntary undertaking that may not be otherwise be eligible to receive the measures under the VLAMP. And there's no adverse cumulative noise impacts anticipated for the project, and that's primarily because Mangoola is separated from the other mining operations by nominally nine kilometres in that Muswellbrook local area. So Mangoola is located away from those other mining operations. So – yes, so does that answer your original question, Professor Barlow?

PROF BARLOW: I think it does. I think that you have reiterated that the receivers, even the older receivers, do maintain mitigation and acquisition rights if they should want that.

MR PEASE: Yes. All right. Well, would you like me just to continue on through our presentation, and then, if we've missed anything in particular, obviously ask as we go or towards the end.

PROF BARLOW: Yes. I think what we might do is, as you move through these things, if we have particular questions, we may just intercede and ask those questions. And this was one of the questions here. So if you do go forward, but in between, we might say, "well, we are satisfied with that", just so we can move quickly.

MR PEASE: Okay. All right. Well, I'll just continue to move through the presentation and, yes, please call me up when needed. So as far as – one of the questions that you had was around, obviously, the construction activities and the impacts on noise. So the intent is that construction will occur during standard construction hours. There are some areas or activities that we have considered that may be needed to be done outside of standard construction hours. And the thing – and we've listed those there.

And I'll just quickly go through them. So, for example, deliver of oversized plant or structures that authorities may determine require special arrangements to transport along public roads. So if we're directed to transport large equipment, for example, at a certain timeframe, that may be outside of the standard construction hours. Construction that may be directly affected by wet weather; and the example there is that the coal that's intended to go in Big Flat Creek, it may be advantageous to actually do that outside of the hours to perform works in as short a period of time, and potentially to reduce environmental impacts by doing that. Concrete boars and roadworks may be required to be completed as a single event to ensure structural integrity, particularly around the concrete boars, and we're thinking there around the – mainly around the crossing over Wybong Road for the arch crossing structure. Roadworks to limit impacts to other road users. So timing of any road related impacts.

In the project description, there is a bypass road intended for Wybong Road to go around the construction area of the crossing of Wybong Road, and the intent of that bypass road is to reduce – is almost negligible, the impact on road users using that local road, Wybong Road. But the ..... of that road may need to be done at a certain particular time of the day.

And then, there's connection of 11 kV or local power supply and other communication networks that may be advantageous again to do outside of standard construction hours. And delivery and placement of overburden material from the existing Mangoola operation. So the intent is, particularly when we're building, for example, the haul road that links the existing operation to the new mining area,

Mangoola will provide – the operation of Mangoola will provide material to the works area – the activity area for construction. And then, any works undertaken outside of standard hours would be managed so that the total noise from the existing approved operations and the construction activities do not exceed the noise criteria in the recommended conditions. So that's the commitment that we've made and noting that the mining operation is adjacent to the construction area. So - - -

PROF BARLOW: Thank you.

MR PEASE: All right. So that was the preparation that we've done for this meeting under the agenda items. Is there any particular – or further on noise impacts you'd like to discuss?

PROF BARLOW: No, I think we're fine with that, thank you. You're right, aren't you, Peter?

MR PEASE: Okay. So the next one on the agenda was the blasting and vibration. So, again, the intent is just to – in the first slide or two, is to identify what Mangoola currently do as an existing operation. So Mangoola has an approved blast management plan; so under the current operating consent and the associated EPL conditions. So that blast management plan will be updated to meet the requirements of the new development consent. And that blast management plan addresses blasting criteria; so things like the levels, the limits, the hours of blasting, the frequency, or the number of blasts, etcetera. It addresses blast design, the operational controls, the monitoring, and then the reporting and the reviewing of that process.

Each individual blast is designed – so each blast is designed to meet criteria using well known prediction models that consider charge waves of the explosives, the stemming, and the distances to any sensitive location. The predicted blasts – sorry – the predicted vibration models are calibrated against actual measured results. So the guys that do that work actually calibrate their models against the actuals. And then, particular to the question that was on the agenda, ... pressure control was designed through stemming depth equations and the use of an online environmental prediction tool. And the snapshot on the right-hand side of the presentation is that tool. And then, each blast is managed through a blast permit, and then pre-blast assessment procedure covering all aspects of the planned blast.

I will move to the next one – the next slide. So the measures to ensure blast criteria is not exceeded. So DPI conditioned Mangoola to ensure that the site – so this slide is particularly around the Aboriginal Rock Shelters, Anvil Rock, and the book formations which are located within the Anvil field offsite area. And then – but they're particular to the vibration limits, as they apply under that blast management plan and the condition – consent conditions.

So the process for Mangoola looking after those particular areas or items is that Mangoola engages a qualified specialist to review the safe blast vibration limit for the rock formations on an annual basis. Structural condition monitoring of the rock

structures and shelters is completed on a six-monthly basis by a qualified person to monitor for any damage. The monitoring methodology involves measuring from fixed points with a digital tape extensometer to measure any movement of the rock mass during the monitoring – during the blasting phase. There's no significant structural movement has been detected in the measurements to date in over eight years. All blasts are monitored against the approved criteria. And further to that, cameras with built in 3G telemetry had been installed at key areas, such as the Rock Shelters and Anvil Rock. And I won't read that next point about the photos, but an extensive monitoring system for Anvil Rock is in place. So, in particular, Anvil Rock is heavily monitored due to its location. And, again, on the slide there, you can see the location on the Anvil Hill offset area and its relationship to the existing operation in that top left picture.

PROF BARLOW: Yes.

MR PEASE: An extensive monitoring system for Anvil Rock. So a permanent vibration monitor, or a GFA is at the base. There's four hourly photography or photographing using time-lapse camera. Six monthly measurement inspections, again, by the geotechnical engineers, to validate if there's any damage. A tilt sensor GFA and accelerator on the top of the structure. And you'll note that there's an access letter on that right picture. So that structure doesn't actually touch the rock, but it was necessary to put that in place and will be removed at completion of the monitoring phase of the mining phase in relation to that – to the Anvil Rock. And a GFA at the base of the structure. And all results since mining commenced remain below the 50-millimetre setting limit, and that's over a thousand blasts.

PROF BARLOW: Could I just ask a question, then? That comprehensive model monitoring that you are doing, does that get reported to the Department of Planning every year, or is it just company data that you would only report if you exceeded those limits?

MR LANE: Professor Barlow, it's Nathan Lane here. I'm the community manager.

PROF BARLOW: Yes.

MR LANE: It's reported in our annual review, which is available on the company website.

PROF BARLOW: Okay. Thank you for that. Peter Cochrane has just asked a question. Can you change your notes, your presentation here, to the view in the normal mode rather than the presenter view, because that will make it bigger for us here? Can you just click it over to the full view?

MR PEASE: Yes, we can.

PROF BARLOW: And then - - -

MR COCHRANE: And while you're doing that – it's Peter Cochrane – this is the first time I've seen the picture of the Rock Shelters. Are any of them sandstone overhangs, or are they all more in the nature of caves, such as depicted in the photograph?

MR LANE: It's Nathan Lane here, environment and community manager. I'm not necessarily a Rock Shelter expert, but there's probably a combination of both out there, what you determine as a cave and what you determine as an overhang – a mixture between them, between the two. And different levels of undercut at any given cave. They're all pretty uniquely different.

MR COCHRANE: So one would assume that shelters that were largely overhangs, with an overhanging shelf of rock, would be much more susceptible to blasting than the sort of cave that is depicted in the photo on your slide.

MR LANE: Again, this is – we generally have a sort of ..... assist us in this area, which are blast experts, and they're probably better to comment on susceptibility, as they're all different; they're all sort of assessed relative to the distance. And they're all also different distances from blasting.

MR COCHRANE: Yes.

MR LANE: So, obviously, the distance also needs to come into consideration relative of vibration impacts.

MR COCHRANE: Yes. So just to be clear, all of those Rock Shelter sites are being monitored in the same way that you've described here?

MR LANE: We monitor the Rock Shelter nearest to the blast, because that's the Rock Shelter – that's our statutory commitment, because they're the ones that undergo the largest amount of vibration. So - - -

MR COCHRANE: Yes. They're the ones at Anvil Rock.

MR LANE: Anvil Rock has a permanent monitor. It's monitored for every blast. But the monitors – that is, permanent monitoring stations – at those which are the closest at any point in time for the mine, and they're monitored for every blast. And they're checked that they're online prior to the blast occurring, and if they're not online, they're replaced with a temporary monitor prior to blasting.

PROF BARLOW: And what would happen in the northern extension where you're moving further away from Anvil Hill and those sites that appear to be to the west of the site, and I think there are some up adjacent to the northern extension area as well, aren't there?

MR MERRILL: Yes. It's John Merrill here. Yes, there are some recorded Rock Shelter sites up there. They were recorded in some older archaeological work. The

archaeologists that did the work for this project are of the view that they're not sites because they don't – in their view, they didn't meet the criteria for being sites and there was no artefacts or evidence of occupation; however, after some discussions with BCD as part of the approval process, it was agreed that they would be retained as listed sites and they will be managed as such. So it's, I suppose, taking a precautionary approach there to manage those as Rock Shelter sites.

PROF BARLOW: And that means they will be monitored as well.

MR MERRILL: Yes.

MR COCHRANE: Yes. So these are the ones that are in the proposed conditions of consent in appendix 4, labelled DFC 126, 129 to 132; is that correct?

MR MERRILL: Yes, it is.

MR COCHRANE: They lie just within or right on the western boundary of the northern extension of the subject area.

MR MERRILL: Yes. Yes. Yes, they're - yes, they're the ones. Yes.

MR COCHRANE: And are they the ones some Aboriginal representatives didn't want further archaeological work done on them?

MR MERRILL: Yes. There was a discussion – because there was no sort of evidence of artefacts or occupation, there was a discussion as to whether or not to do some excavation work in those, to determine, you know – to confirm whether they were or weren't sites, but there was – and there was a discussion about that and, in the end, it was decided not to do those works and, as we said, they're precautionarily being – you know, they're a listed a site, so they're – they will be managed as such without any further work.

MR COCHRANE: Okay. Thank you.

PROF BARLOW: And that's good that – the size of that is good as it exists now. So thanks.

MR MERRILL: Okay.

MR PEASE: And the intent of sharing this with you is to show that these controls will continue into the new area.

MR COCHRANE: Yes.

PROF BARLOW: Thank you. That's what we were concerned about, and you have answered that question. So can we - - -

MR PEASE: Yes.

PROF BARLOW: Rehab's next, isn't it?

MR PEASE: So again, the intent is to do an introduction into what Glencore does as far as rehabilitation and the flow-on effect to the operations, including Mangoola. So Glencore Coal conducts rehabilitation activities across all its operations and has a proven track record of success, and then as – as different operations move towards closure in, say, a 10-year and a five-year period, they enter a more detailed phase of mine planning, and to demonstrate this Glencore has – have two sites in closure execution phase currently.

So Macquarie Coal near Lake Macquarie on the western side, and Baal Bone there located at Lithgow, and those photos again in that slide on the right – top right that shows the Baal Bone closure project in progress and the Macquarie Coal closure project in progress, and the focus of mine closure projects is to deliver the agreed outcomes as set out in the environmental assessment and ..... conditions, and Glencore have two sites, obtained signoff for rehabilitation in 2020 with 40 hectares at Westside, which is the top left photo, and 50 hectares at the Ulan Mine out near Mudgee, and just pointing out that these are actually a first for a coal mine in New South Wales. Next one.

So Mangoola. So you asked about Mangoola's key learning. So Mangoola's pioneered natural landform rehabilitation using Geofluv software, and to date they've completed 755 hectares of natural landform onsite, and there's eight different vegetation communities within that landform. Mangoola continue to modify and improve the way they operate. So there's a continuous learning process onsite, and this drive for improvement has resulted in changes for the way rehabilitation has been conducted over the years, and examples of that are the use of gypsum in combination with topsoil and mulch, as opposed to using chemical fertilisers.

Final landform is actually subject to deep ripping on the contour, as opposed to dropdown structures as may be common in other mines. Direct emplacement of topsoil to limit storage and handling requirements, so when they strip the topsoil onsite they take it straight to the – generally, take it to eh final landform area to be installed, and that's also to maintain the soil biota and has been quite successful.

Habitat tree salvage and installation, along with nest boxes. So the site currently has over 1500 nest boxes to encourage pioneer species and provide habitat, and there's a good example of those – good examples of those nest boxes being well used. Installation of frog ponds in the rehabilitation areas, and there's currently nine in total, and that's been demonstrated with four species currently being identified to date.

The site uses only locally harvested seed from within the proximity of Mangoola and hand seeding is done on all rehabilitation areas. We maintain a track network – a network incorporated into the area of rehabilitation for access for weed management

and monitoring purposes, and three species of endangered orchids, so the Diuris tricolour, the Prasophyllum petilum and Cymbidium, and one critically endangered shrub, the Pomaderris, have been successfully translocated into the rehabilitation, and Diuris is actually showing some natural dispersion, and that same approach will be applied to the new mining area, the MCCO project area. So, hopefully, that answers the – your query on the rehabilitation, but as far as - - -

PROF BARLOW: Peter, did you – do you have any questions on that? We'll – we're looking forward to seeing it next week when we visit your site, but, Peter, do you have any more questions now?

MR COCHRANE: Yes. Two. And, firstly, just to say the rehabilitation video on your website was very helpful to get a good picture of your work and its progress. You mentioned in your first slide there that you have a proven track record of success. Could I unpack that a little bit in terms of what that proof is, that was one question, and the second, I'm interested in whether the nest boxes have been utilised by Swift Parrots, which, of course, are one of the EPBC species of concern.

MR LANE: Commissioner Cochrane, it's Nathan Lane here, environment and community manager. So the first question was around proven success, and we've been progressively rehabilitating mines since 2011. So that 755 hectares actually follows the mining operation. So we have rehabilitation that's as new as last year, and as old as 2011, and throughout that period we're continually monitoring our rehabilitation reporting on that monitoring in our annual review, which is on the company website.

MR COCHRANE: Yes.

MR LANE: One of the – there's several measures of success. We've, obviously, got a completion criteria in our mine operations plan which we continually measure ourselves against. Some examples of that success is the percentage of weeds on the site. We have very, very, very low weed load. We also have secondary succession in all our canopy species in our old rehabilitation. So what's that showing is there there's – the ecosystem is naturally recruiting and that it's going to have succession throughout and sustainability.

We also have a lot of faun monitoring within our rehabilitation. So that's a mixture between ecologists attending the site, looking in nest boxes. There's also a lot of trail cameras, and we capture all those observations as we go through, so we've had a lot of recruitment of fauna species which surround the operations which are starting to recruit back into the rehabilitation, and like Brian alluded to earlier, our translocation success has been really, really good.

That Diuris, actually, this year has gone for the first time in succession and Dr Steven Bell recorded recruitment around one of our plots, which was great to see, but overall, as well, the last two years we've went through a pretty heavy drought, as you'd be aware, and, obviously, that drought changed in 2020, and we've also seen

really good resilience, and that's attributable largely to the endemic seed which is collected from around the site. In terms of the Swift Parrot in the nest boxes, I'd have to take that question on notice. I don't have the data or those reports in front of me, so - - -

MR COCHRANE: Thanks very much.

PROF BARLOW: Thank you. Let's continue.

MR PEASE: Okay. Do you want to go – so your next – or the next item on the agenda was the greenhouse gas emissions. So the question – the first question was around the methodology and estimating the greenhouse gas. So it was prepared with regard to the National Greenhouse Accounts Factors 2018, and the World Business Council for Sustainable Development and World Resources Institute Greenhouse Gas Protocol, so the 2004.

The protocol provides an internationally accepted approach, and fugitive emissions in the EIS were calculated using the method 1 approach, as described in that protocol, which uses the default emission factor of .054 times the CO2 equivalent per ROM Tonne for New South Wales open cut coal mines. I might point out that gas testing results of coal samples, of core over three separate holes and 43 samples during the exploration in the project area was in the order of .001 tonnes of CO2 equivalent, indicating that the assessment that informed the EIS has been very conservative in its approach.

PROF BARLOW: Can I just ask a supplementary the supplementary there, those three boreholes, and we're aware that, of course, that there are, I think, three or four coal seams that you will mine during this project, and did you do, you know, basically gas release and testing results from each of those coal seams or - - -

MR PEASE: Yes.

PROF BARLOW: - - - were they just aggregate results for each hole?

MR PEASE: No. No. They were – those 43 samples were from the target coal seams.

PROF BARLOW: Okay. And that's an average of – or in the order of .001, was the average of those 43 samples or something like that?

MR PEASE: That's my understanding, yes.

PROF BARLOW: Yes.

MR PEASE: Yes.

PROF BARLOW: Okay. Thank you. Proceed.

MR PEASE: Next one. So that's the methodology, and then this next slide is the findings, which would be in the EIS, so if you want me to continue - - -

PROF BARLOW: No, you don't. We're familiar with that. Thank you. Yes.

MR PEASE: Okay. No worries.

PROF BARLOW: We do have a question there, though, back on the efficiency, and maybe that's coming, in terms of, you know, we – we had just discussed the fugitive emissions scope 1, but then there are the electrical commissions and also the diesel, which is part of the, presumably, scope 1, as well. Now – and you have committed to achieving efficiencies in that. You've been operating for at least about 10 years now. Do you see yourself achieving more efficiencies in this next phase of the mine than you have already in this regard to the areas where you do have, you know, some control on electricity and diesel?

MR PEASE: Yes. Professor Barlow, if you allow me to go to the next slide.

PROF BARLOW: Yes. Thank you.

MR PEASE: We may answer your question in these coming slides.

PROF BARLOW: Yes.

MR PEASE: So Mangoola Coal are required to report in line with the safeguard mechanism from 2016, and requires Australia's largest emitters to keep emissions within baseline levels.

PROF BARLOW: Yes.

MR PEASE: And that mechanism applies to Mangoola. In the 2019/2020 NGERs data shows that a total of 123,000 tonnes of CO2 equivalent of scope 1 emissions and 49, or near 50 thousand tonnes of CO2 scope 2 emissions were generated. 91 per cent of the scope 1 is a result of diesel burning. So I think I'm coming to your question.

PROF BARLOW: Yes.

MR PEASE: Mangoola's emissions are already considerably lower than other Glencore Coal open cut operations, and one of the primary reasons for that is that the Mangoola operation, which hopefully you'll see next week, is a relatively shallow operation. So it doesn't have an extensive haul road network of significant grades. It's a relatively flat operation, and the fugitive emissions, as we've discussed, are quite low.

So far as incorporating measures into the mine design that minimises that – the emissions and improves energy and, therefore, the mining efficiency, and also

reduces diesel cost, which is, obviously, a large operating cost. So there is a reasonable amount of focus on getting as much efficiency out of the equipment as possible, and that includes things like limiting the length of haulage routes where feasible, thus minimising transport businesses and associated fuel consumption.

The design of haul roads is critical in those routes, particularly in regards to grades and corners and intersections to minimise the energy usage and, therefore, the emissions, and considering energy and fuel efficiency when selecting new equipment. So you're right in what you said previously that the mine will continue on. The project will use the majority of the existing equipment, particularly the truck sleeve, as part of the normal cycle of replacement of equipment over time. That will okay, and – but when that occurs, one of the primary – or one of the considerations in buying new equipment is, obviously, its efficiency when it comes to diesel burn, etcetera.

So I have no doubt that that will be one of the items that is looked at quite closely, and then scheduling of activity so the equipment and vehicle operation are optimised. Again, that's not only from emissions, but just the way Mangoola and Glencore does business is to optimise the equipment and, therefore, the operation. As far as other equipment onsite, such as the existing coal preparation plant and other fixed facilities, so conveyors, etcetera, the existing measures will remain in place, and Mangoola being a relatively young operation, in the original design things like high efficiency motors, triple EF drives, even the low – we mentioned earlier about the low noise idlers. To make them low noise, they're actually balance idlers, and in doing that you actually reduce energy usage by doing that on your conveyor system. So there is a number existing factors or measures in place at the operation that will continue.

PROF BARLOW: I noticed in the – you know, the, sort of ..... diagram that you've got on the right there, you have a figure for fugitive emissions post mining. What's that? Is that, you know, after you remove it from the mine and then transport to market? Where do those emissions occur?

MR PEASE: I think the intent of that comment is that it's as – the mining process, when it says post mining, I think it should have actually said mining process.

PROF BARLOW: Okay. Got you.

MR PEASE: Yes.

PROF BARLOW: That's right.

MR PEASE: All right. So we'll go to the next slide, because - - -

MR COCHRANE: Sorry. One – so Peter Cochrane. One question on that slide, around about the middle of the slide it says 91 per cent of scope 1 emissions were from diesel burning, but the assessment report says something like 70 per cent of

scope 1 and scope 2 emissions are actually fugitive emissions. So could you explain that 91 per cent.

MR PEASE: Yes. Yes. So, sorry, the assessment was done as per the protocol. This is actually reporting the actual NGERs reporting data.

MR COCHRANE: Which doesn't include fugitive emissions; would that be correct, then?

PROF BARLOW: No, it does, Peter.

MR COCHRANE: Okay.

PROF BARLOW: I think the – well, sorry, I'll leave it to you to answer the question, but it appears in the NGERs method that there are alternatives there and you can report either with the default fugitive or fugitive emissions based on your own measurements, but it looks to me there that you've reported on figures based on your measurements; is that correct?

MR PEASE: That's my understanding, but if you'd like clarification on that, we can come back to you on that.

PROF BARLOW: Yes, we would – no, we would like that. Thank you.

MR PEASE: And then the last comment on the agenda against greenhouse gas was, "Has any thought been given to onsite renewable energy". So Glencore Coal overall as a company has investigated greenhouse gas reduction opportunities in line with even the broader Glencore framework. So it's through the period of 2018/2020 Glencore Coal undertook concept level assessments of potential carbon reduction initiatives at all operations, including Mangoola. The investigation included renewable energy options, such as solar, solar plus battery, the use of biofuels and fuel additives.

Those options were then rent against carbon reduction initiatives by economics and the magnitude of the abatement. The investigation at that time concluded that there was no viable opportunities; however – and Mangoola, in particular, solar and solar plus battery was assessed. So even though there was no viable opportunities when, at the time, Glencore Coal will continue to monitor the potential of carbon reduction initiatives with a view to incorporating any practical operations into operational business plans. So to answer your question, yes. Yes, there has been thought, and there has been a body of work done, but at this point in time, there is no viable opportunities has been seen.

MR COCHRANE: One question on that. Presumably one potential option is actually the purchase of renewable energy, as opposed to generating onsite.

MR PEASE: Again, that would be something I would have to take away and clarify.

PROF BARLOW: Yes.

MR COCHRANE: If you could, just wondering whether you actually had included that in your suite of potential measures.

MR PEASE: Okay.

MR COCHRANE: So I had one other question, just generally, on this topic.

MR PEASE: Yes.

MR COCHRANE: The proposed conditions of consent asks you to prepare an air quality and greenhouse gas management plan for the development, and the potentially different interpretations of what the development might be, and whether it's the combined existing plus the extension, or whether it's just the extension. Is there an existing air quality and greenhouse gas management plan for the current operation?

MR LANE: Commissioner Cochrane, it's Nathan Lane here, environment and community manager. Under the current consent, we have requirements for an air quality management plan and an energy savings action plan, which are the two requirements; however, they, obviously, the new consent would combine those, essentially, into two - - -

MR COCHRANE: Okay.

MR LANE: - - - from two management plans into ..... across the whole site.

MR COCHRANE: Okay. That's good. As condition B31(d) asks, in this new plan to establish a diesel combustion emissions baseline, I would have thought you would have one of those under your existing arrangements. This just goes to this question of this particular condition looking like it applies, sort of, de novo just to the extension, as opposed to the whole site.

MR MERRILL: Yes. The intent – sorry, it's John Merrill here. Yes. I think that condition relates to a baseline that would need to be reported, obviously, to government, and I'm sure Mangoola has a – already some sort of baseline, but, yes, the condition applies to the whole mine, all the existing operations and - - -

MR COCHRANE: Okay.

MR MERRILL: - - - the future operations in the north and that's the way it's - - -

MR COCHRANE: Intended.

MR MERRILL: That's the way it's interpreted and will be applied, so - - -

MR COCHRANE: Okay. Thank - - -

PROF BARLOW: Yes. And the baseline would apply, you know, previous operations, presumably.

MR MERRILL: Yes.

MR COCHRANE: Yes. Okay.

PROF BARLOW: Yes.

MR COCHRANE: And, sorry, there is one last question on that issue that we've recently come to is in your rehabilitation plans what measures and confidences there that there would be a minimisation of fugitive gas emissions from the rehabilitated site post closure? The void, presumably, is – would become a lake and would prevent coal – any exposed coal seams being oxidised, but would that also prevent methane release from those coal seams if they're exposed surfaces underwater?

MR MERRILL: We might have to take that one on notice. Obviously, as part of the closure and rehabilitation process, there's sealing off of seams, any exposed seams, to prevent, sort of, any post closure issues, but we might have to go and ask the gas experts as to how, you know, the effectiveness in terms of fugitive emissions. So we might – we'll come back to you on that one, if that's okay.

MR COCHRANE: Yes.

PROF BARLOW: What's the nature of the sealing that it undertakes at those, you know, the – at the juncture of the coal seams when you seal it for rehabilitation? Do you know how they seal them.

MR LANE: It's Nathan Lane here, environment and community manager. In terms of, I suppose, sealing of the coal seams, adjacent to any – I suppose, we backfill the pit as we go for the rehabilitation, and then at the end of mining there'll be left a final void and, generally, what they'll do is they'll dump materials against the walls to make those safe and stable and as part of that the exposed coal seams will be treated with that dumped back material, basically, also to reduce the risk of any spontaneous combustion, as well.

PROF BARLOW: Thank you, Nathan.

MR COCHRANE: Thank you.

MR PEASE: Yes. So on the agenda we'll – if you don't mind, we'll just go past the surrender of the existing consent, and we've left that till last, but from the surface water perspective, again – I'll quickly go through it, because it's just the – I guess,

the outline of the surrounding waterways. So there's Sandy Creek to the east; Big Flat Creek, which is adjacent or – to Wybong Road and between the new mining area and the existing operation; Anvil Creek, which is – the existing operation mines through, and is committed to re-establishing, and that's to the – just to the west of Anvil Hill; and, then Wybong Creek, which is fed from Big Flat Creek; and, then the Hunter River.

The existing Pit Water Dam and tailing storage facility, which we term 2D4, is actually built within the pit limits of the previously mined area, and it has a limited – very limited catchment to reduce surface water inflows. All dams onsite have an operation and maintenance manuals, and are designed with adequate storm capacity, and 2D4 provides for adequate tailing storage capacity for the existing operation, and through to the end of the life of the project area. Mangoola holds sufficient water licences to account for existing operations and the project area, and the site water balance is updated on an annual basis.

So as far as flood discharge management, the water management system for the project builds on the existing system at Mangoola, which aims to maximise water recycling and minimise external water importation. The project is seeking approval to maintain the ..... but it's not yet constructed, ability to discharge to the Hunter River via the Pit Water Dam in accordance with the Hunter River Salinity Trading Scheme, or the HRSTS. Mangoola currently holds 35 HRSTS discharge credits, however, again, these have no been required for the existing operation, and are predicted to be sufficient to cover the project, as well.

Water storages are maintained at monitored levels to provide adequate capacity in the event of a storm event or periods of prolonged rainfall, and Mangoola has a trigger action response plan, or shortened to TARP, in place that will initiate construction of the discharge system if the total site water inventory exceeds 3000 megalitres, which is equal to 77 per cent of the capacity of both the Pit Water Dam and the Raw Water Dam combined, and there are steps in the plan that are taken to prevent the need for offsite discharge in the absence of having the HRSTS in place: cease water extraction from the Hunter River; transfer water to the Pit Water Dam, if there's sufficient free water; the site can also transfer water to the open cut mining areas if required; and, transfer water between the Pit Water Dam and the Raw Water Dam. So there's a number of mechanisms onsite to be able to manage a high rainfall event onsite with a high degree of confidence that there would be no spillage externally.

PROF BARLOW: How long would it take you to, if – and what are the plans for the construction of the HRSTS discharge system? Will you only do that if you need to do that?

MR PEASE: That's correct, and that's – the actions, or the triggers are maintained within that trigger action response plan.

PROF BARLOW: Okay. And the way it currently reads, if you exceed 3000 megalitres, you will do that. How long - - -

MR PEASE: Correct.

PROF BARLOW: - - - would it take to initiate the construction of that discharge system?

MR PEASE: The - - -

PROF BARLOW: How long would it take to do it?

MR LANE: Professor Barlow, it's Nathan Lane here, environment and community manager. The estimated construction timeline from our specialist is around a nine month period to construct that discharge facility. The pipeline's currently in. So it discharges down that existing pipeline, which is our Hunter River take off. It just mainly involves the installation of some diesel pumps, because it can't be done by gravity, and it also needs the installation of the monitoring equipment, which needs to be maintained in accordance with the regulations.

PROF BARLOW: Okay. So you'll use the same pipeline, but just reverse the flow, effectively?

MR LANE: That's correct.

PROF BARLOW: Is that right?

MR LANE: That's correct.

PROF BARLOW: Yes. Okay. Thank you for that.

MR PEASE: All right. So we'll move to mine closure planning. So the conceptual final landform has been developed over a number of years and iterations. The landform establish and rehabilitation will be completed using the same techniques as the current site, achieves the existing approved site objects to reinstall Anvil Creek and Clarkes Gully, so that's the existing site, and rehabilitated woodland and grassland vegetation. The final landform generates credits, so this – we're talking about the project area here.

So it generates credits, 456 hectares of rehabilitation will be utilised in the offset strategy for the project, and then we're – just pointing out that the final landform has gone under a fairly rigorous peer review process through Xenith Consulting from the mining – mine planning perspective, and Integrated Environmental Management Australian from the final landform and rehab perspective, and I won't read out the comment there, but it basically says it – you know, it represents an appropriate outcome and balances all the inputs into that process. Next slide.

So a detailed mine closure plan will be developed five years prior to the planned mine closure to achieve the post mining landform and land use outlined in the recommended conditions. Obviously, Mangoola had has an obligation to meet the outcomes of the EIS, unless an alternative land use is approved, but if there is an alternative land use put forward as part of that mine closure planning in the detail phase, it may require a development application at the time for whatever that is. The mine closure plan will include evaluation of reuse opportunities for the facilities, noting that, you know, the current site does have infrastructure and services and has some potential post mining for other uses.

The existing site has infrastructure, and may be used for industrial, agricultural, defence, recreation or forestry. So we tried to outline all those potential items in our environmental impact statement. Now, obviously, they've got a good power infrastructure, good buildings, relatively – all relatively young, roads, amenity buffers and other features on the site that may be attracted to other business. Post mining land would need to consider the suitability of the site, and objectives in relation to the existing biodiversity offsets, and any of the offsets that are proposed for the project. Excuse me.

The mining closure plan will also investigate ways to minimise the adverse socioeconomic effects of mine closure, including any reduction in local employment, and we'll be – and developed in consultation with the relevant New South Wales Government agencies and Muswellbrook Shire Council. So that's our commitment. Is there any questions around mine closure planning?

PROF BARLOW: Well, yes, I suppose the question I take that you will seek to look at the range of alternative uses for your infrastructure. If in the event you cannot find a use is the default to just dismantle it?

MR PEASE: Correct. Correct. So the default is – and the commitment is that the site would be fully rehabilitated. So all the existing infrastructure would be decommissioned and removed from site and the land rehabilitated.

PROF BARLOW: Okay. Thank you. Peter, do you have any questions on that? You're muted at present, Peter.

MR COCHRANE: No. No, thank you.

MR PEASE: All right. Well, we'll move to the next one. So the VPA status. So, hopefully, we've established already Mangoola has an existing VPA in place with council. It's been amended over time to reflect the modifications that have occurred to the existing operation under the consent. The VPA commenced in 2009. At the end of 2020 Mangoola's provided approximately $10.7 million in funding under the VPA. In June 2019 Mangoola offered an extension of the VPA to Muswellbrook Council, which without – so without the project, the existing operation – sorry, the payments under the VPA would cease in 2026.

A nominal figure – so approximately $4.7 million would be applied under the VPA should the project go ahead from, nominally, 2027 through to 2031 for environmental, road and community based programs. I might note that the mining would complete in 2030, but under the VPA, payments continue for a further 12 months after the completion of coal mining, so that's why there's a 2031 there, and the picture, or the snapshot on the right-hand side is the existing VPA, and the status around the payments that have been paid to date and ongoing, and then the proposed VPA.

The proposed VPA items have different values, because council asked us to nominate the values going forward using payments in the 2019 period. So they just wanted to reset the baseline, if you like, so we've done that and provided that to council. In – through the EIS process and associated impact assessment, we propose a community enhancement program that focuses on proximal landholders using a portion of the funds from the VPA. So that was a commitment that was made in our EIS, and that would be done in consultation with proximal landholders. So what that program looks like hasn't been determined, but we propose to have a program.

Mangoola's made numerous and ongoing efforts to further discussions with Muswellbrook Council around the VPA since our letter in 2019. In February 2021, following the release of the DPIE assessment report, we have again attempted to further those discussions, and the other matters that are associated with this project with Muswellbrook Council, which includes the closure of Wybong Post Office Road, and any processes associated with the – under the Roads Act, the S138 applications for working on the local road network, such as the crossing of Wybong Road and any construction access points, and to date we've had no formal response or pathway has been provided by Muswellbrook Council, but, obviously, Mangoola remained open to further discussions at a time suitable to the council, and this is to enable the continuity of the Mangoola operation.

PROF BARLOW: Thank you. Just a couple of questions regarding that, because you mentioned the engagement of the local apprentices. How many apprentices does Mangoola routinely employ?

MR SLATER: Look, Professor Barlow, it's Nick Slater, the operations manager here. I'll have to get back to you on the exact number, but regularly we're employing somewhere between nine and 10 apprentices from the local community each year.

PROF BARLOW: Thank you. I'd appreciate it if you did get back, but – and the second thing is, there is – could you give us a bit more detail about the community enhancement program that focuses on proximal landholders using a proportion of the funds from VPA. What does that involve?

MR PEASE: The – well, the intent of that, as I said, was a commitment that was made as a result of the social impact assessment. What that program looks like hasn't been detailed as such, because the intent was to consult with Muswellbrook

Council around that particular item, but the intent was to engage with the local community and fund projects that both council, the community and Mangoola saw would be of a benefit to that community.

MR SLATER: Yes. Effectively, what was proposed in the social impact assessment was to put together a – you know, agree a process. So go out, consult with key stakeholders, including the local community, form a – effectively, call it a reference group or a group to deal with the process and then, you know, agree terms of reference and how that group would operate and, as Brian said, the intent would be for local community representatives, council representatives and Mangoola representatives, and then they would come up with terms of reference for project opportunities and then assess them based on the funding that was available, so that's the – sort of, the intent, but as Brian said, it's subject to that engagement, I suppose, once the terms of the VPA are finalised and determining what's, sort of – you know, what money may be available for local projects through the VPA.

PROF BARLOW: Thank you. Just a final question there is you mentioned you have put a proposal to – you know, for the extension of the VPA to the Muswellbrook Shire Council, and you haven't had any formal response or pathways, do you think that sort of lack of progress in that area, is that really around the Muswellbrook Shire Council, you know, are waiting on our decision with regard to the extension?

MR PEASE: To answer your question, we really don't know. There may be a thought that they're waiting on the consent to be granted before they'll engage with us on a meaningful basis.

PROF BARLOW: All right. Thank you. Peter, do you have any more questions regarding the VPA?

MR COCHRANE: No. Thank you.

PROF BARLOW: And the final thing – I don't know whether you've got any more. I think that's pretty much all you've got, isn't it?

MR PEASE: There was one more slide on the VPA just identifying funding for projects that have been carried out, and there was another additional dot point there identifying that in addition to the VPA, Mangoola provides separate funding for numerous community-based initiatives in ..... both as – in a – from a monetary perspective, which is currently over $900,000 since the operation commenced, but they also do activities in kind, providing labour for different projects and materials, at times. So, yes, that was just a demonstration, I guess, of the amount of commitment that Mangoola gives to the community.

PROF BARLOW: Thank you. Thank you for that.

MR PEASE: The final slide was trying to address the comment around the recommended draft conditions.

PROF BARLOW: Yes. I suppose our question's – yes, and so you really answered it there, in a sense, of the – you consider the draft conditions are achievable. Do you have any more comments on the proposed draft conditions of consent?

MR PEASE: No. We understand that the draft conditions incorporate the existing operation and the project area, and any management plans that are either updated or implemented as new will take account of the existing operation and the new project area.

PROF BARLOW: Thank you for that. Peter, do you have any more overall questions?

MR COCHRANE: One. One of the areas that we've been paying some particular attention to is exactly that point of the incorporation and updating of existing conditions of consent into the new proposal, and whilst we understand this is a standard approach and good practice, there are a couple of issues we've been paying attention to where it's not entirely clear about the, sort of, uploading, if you like, or updating of existing conditions in to the new ones.

One of them that I've been looking at is the biodiversity offset strategy. The proposed conditions of consent actually in the definitions refer to two biodiversity offset strategies. The continuing – continued operations project biodiversity offset strategy and the coal project biodiversity offset strategy. Those two things aren't explicitly amalgamated in the conditions, although it appears in the EIS and also there is appendix 6 of the proposed conditions, which seem to amalgamate in both of those.

I guess, do you have any comments on – well, I would like to see it, sort of, explicitly clear how these two things integrate and combine, because whilst the consent document is a matter largely of the regulator and the proponent, the public also takes interest in these things, and so ensuring that these conditions are really clear, if you like, to the average reader, rather than someone who has to delve through four different documents to find out what the precise meaning of these things is, would be helpful.

MR MERRILL: Yes. Look, we – it's John Merrill here. We probably understand the complexity and the question. I suppose, at a really simple level the existing operation have commitments to offsets, which they have met through establishing conservation agreements, and those conservation agreements are in place so that the existing offsets are in place, and that conservation agreement, as agreed with the government, will manage them.

The new offsets, because of the change in biodiversity legislation, they will be managed as stewardship sites. So they'll be subject to a separate set of agreements,

and they are to be managed. So I think what perhaps the department is trying to do in the conditions is differentiate between the ongoing responsibilities that Mangoola has for the existing sites that are already established and have a legal mechanism in place - - -

MR COCHRANE: Yes.

MR MERRILL: - - - versus the new ones that will be established as an outcome of this project if it's approved, so – but, yes, we recognise the complexity in trying to give that message simply, so - - -

MR COCHRANE: Yes. And it's not clear enough, because the one condition is that the applicant must implement the Mangoola Coal continued operations project biodiversity offset strategy. So it's not that clear that that, actually, really, encompasses both - - -

MR MERRILL: Yes.

MR COCHRANE: - - - the existing and the new. So we might look to some variant of that to make that just a bit more explicit.

MR PEASE: Yes.

PROF BARLOW: Thank you. Brad, do you have any questions or something you'd like to ask?

MR JAMES: Nothing from me, Snow.

PROF BARLOW: Yes. Does Glencore have any questions to us as commissioners?

MR PEASE: No, not at this stage.

PROF BARLOW: Peter, do you have any more final questions?

MR COCHRANE: No. Just, really, to thank you for your time and comprehensiveness of the presentation.

PROF BARLOW: Yes. Thank you. The presentation has proved very useful, and the interactions on the way through, I think you addressed the topics we'd outlined for discussion very well. So thank you, it's been useful and it's been a useful meeting.

MR PEASE: Okay.

PROF BARLOW: So thank you for your time and we look forward to seeing some of you next Tuesday, I believe.

MR PEASE: Yes. We look forward to that, as well, being able to show you the sites.

PROF BARLOW: Yes. Thank you.

MR PEASE: Thank you.

MR LANE: Thank you.

MR JAMES: Yes. Thanks.

MR COCHRANE: Thank you.

PROF BARLOW: Cheerio.

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