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TRANSCRIPT OF PROCEEDINGS

TRANSCRIPT IN CONFIDENCE

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INDEPENDENT PLANNING COMMISSION

DEPARTMENT 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

DEPARTMENT: **MIKE YOUNG**
MATTHEW SPROTT

DATE: **9.05 AM, TUESDAY, 23 FEBRUARY 2021**

PROF S. BARLOW: And we'll start with the formalities. Wait a minute. Sorry. Before we begin, I'd like to acknowledge the traditional owners of the land and on – from where we meet today, and pay my deepest respects to their elders past, present and emerging. Welcome to the meeting today. We are here today to discuss the
5 Mangoola Coal Continued Operations project, a State significant development currently before the commission for determination. The Mangoola Mine is an open – an existing open cut mine located 20 kilometres west of Muswellbrook in the Upper Hunter Valley. The project involves the extraction of an additional 52 million tonnes of run of the mine coal by establishing a new open cut mining area known as the
10 northern extension area.

My name is Professor Snow Barlow and joining me today is my fellow commissioner, Peter Cochrane, and we are – we form the commission panel appointed for this application. Joining me from the office of the commission is Brad
15 James and Steve Barry, whom I'm sure you know well. Perhaps – probably not necessary for introductions, but just for the sake of the transcript, Mike and Matt, could you introduce yourselves?

MR M. YOUNG: Yes. So it's Mike Young here. I'm the executive director of
20 Energy, Industry and Compliance at the New South Wales Department of Planning, Industry and Environment.

PROF BARLOW:

MR M. SPROTT: And I am Matthew Sprott, the director of Resource Assessments
25 at the Department of Planning, Industry and Environment.

PROF BARLOW: Excellent. Thank you. In the interest of openness and transparency, and to ensure the full capture of the information, today's meeting is
30 being recorded and a complete transcript will be produced and made available on the commission's website. This meeting is one part of the commission's consideration of this project and will form one of several sources of information upon which the commission will base its final determination. It is important for the commissioners to ask questions of attendees and to clarify issues whenever it is considered
35 appropriate. If you are asked a question and are not in a position to answer, please feel free to take that question on notice and provide any additional information in answer to that question in writing, which we'll then put up on the website. I request that all members here today introduce themselves before speaking for the first time and all members ensure that they do not speak over the top of each other to ensure
40 the accuracy of the transcript.

With those formalities, let's begin. Oh, wait a minute. Here we go. I just had to get you back on screen. The – where we'd like to begin today, Mike or Matthew, is to talk about the surrender of consent, just to make sure we fully understand that part.
45 The application and your assessment of it states that any consent that might be given following our determination will become the consent for the combined mine and,

therefore, will nullify the original consent. And what we'd like to know about that is, while you have written some draft conditions as a result of your assessment of the project, do those draft conditions – will they become the conditions for the whole project or are there existing conditions in the existing consent that will be added to those? So we – we really want to determine what the final conditions will be for this one consent for the overall mine.

MR YOUNG: Yes. So thank you, Professor Barlow. It's Mike Young speaking and I'll sort of touch on – on that first and then maybe Matt can add some detail if necessary. First thing to say is it's very typical for extensions to existing mining operations to – if approved, to require the surrender of consents of the existing operations and then having them be rolled up into one instrument that covers both the existing and the proposed or future or recently approved operations. So that's something that's obviously from a streamlining and regulatory point of view. I'm sure you can see the advantages of that. It becomes – it would become quite awkward and difficult to regulate one site, essentially, under two different instruments going forward. So that's the first thing to say. It's nothing unusual and it's – you know, obviously from a regulatory, efficiency and practical point of view it's advantageous.

In terms of the actual conditions – and I'd say that the EP&A Act has provisions that allow that to occur and, indeed, we've reflected those – that requirement in the conditions of consent – the recommended conditions for the review of the commission, which requires, I think, after 12 months that the consent be surrendered. The other thing to say just before really, I guess, getting to the specifics of your question, is that in order to surrender a consent there are certain prerequisites – even if it is a condition required under the recommended new conditions, is that they have to ensure that they've met those conditions and/or got landowner's consent for the surrender of those conditions, because obviously it gives development rights over that land. Now, in this case that's fairly simple, because I'm pretty sure that all the land is – is owned by Glencore or Mangoola.

In terms of the specifics, the recommended conditions that – when we go through this process what we do is we review the existing conditions and look at what elements of those conditions are non-standard and maybe are particular matters that ought to be rolled over into the new conditions – from a geographic point of view, from a – you know, specifics in regard to maybe particular residences where there might be acquisition rights that would not normally be applied to, say, the new operations but we would seek to maintain those rights under the new consent, etcetera. So we go through quite a forensic exercise. And what that means is that the instrument that we've recommended, attached to our assessment report – once the other conditions are surrendered that would apply and be the only instrument that would apply to both the new and the existing operations.

So if there is any specific concerns about rolling over conditions, etcetera – most of them are fairly standard so that's not an issue, but there are a few bespoke conditions that I think we'll probably talk about as we go through some of your questions,

particularly in regard to acquisition and mitigation rights being rolled over for residences because we think that's only – only reasonable and fair. But, Matt, did you want to add anything to that or that's – pretty much sort of sums it up?

5 MR SPROTT: That pretty much sums it up. Just to give the commissioners some –
some comfort as well on that, is that we – we have recommended a condition, which
is a standard condition applied to all SSD consents where – where this process
occurs, that identifies that where there is an inconsistency between the contemporary
10 conditions that we have recommended for the commission to consider and those
conditions that applied to the old project approval for the Mangoola Mine, that to the
extent of any inconsistency the new conditions supersede those of the old conditions.

So what I mean by that is, for instance, as Mike has said, there's specific conditions
15 such as acquisition and mitigation rights which we've sought to carry forward into
the new consent, but the new consent does also include things like rehabilitation
requirements for the entire – rehabilitation of both the existing Mangoola Mine and
the northern extension area, and those requirements are the requirements that will be
regulated to under the new consent. So to the extent of any inconsistency between
20 the previous requirements for rehabilitation and the new requirements in this consent,
this consent would provide the contemporary best practice requirements for that site.

MR YOUNG: And the only last thing to add, Professor Barlow, is that one – one
does question what happens to the various management plans that are required under
25 both consents, and I think there's a condition there that indicates that before the
conditions are – old conditions are surrendered the – the expectation is that the
current plans would continue to apply to the site, and only once they've been
amended, revised, updated and approved would the new plans then apply to the – to
the site. So, you know, it's a common thing and we've worked through with this
30 project and many others the minutia of how these things work in practice, and what
we've recommended to the IPC is consistent with that standard practice.

PROF BARLOW: Thank you. Thank you, Mike and – and Matt. Probably a – a
clarification here, and I think it's clear from what you – you've said, is that should
35 there be conditions that we might seek to impose, you know, as part of the
determination that really have force mainly in the old mine and – and it becomes
very – you know, very combined because the water systems are integrated – and I'm
thinking particularly of the water systems, but there will be others – and so even
though that could be – which we're not suggesting it is at this point – more stringent
40 than the – the old conditions, that would still apply under these new conditions. So if
our conditions are slightly different from what applied in the old conditions, even
though that was a – a – you know, a consent that was issued many years ago, that –
are you comfortable with that is the way it will operate?

MR YOUNG: So – yes. I mean, that's – that's exactly right, Snow. I mean,
45 obviously, you know, there needs to be a reasonableness applied to that – that – that,
you know, deliberation, and also, you know, relevant government policies and
requirements and so forth. And – and, for example, there are instances where the

EPA has included additional standards or stricter standards for air quality, for example - - -

PROF BARLOW: Yes.

5

MR YOUNG: - - - in regard to PM2.5, etcetera. Now, I'm not sure if that's the case here, I'd have to look at the details between the two consents, but it's not uncommon for us to impose more contemporary standards on a new set of conditions and have them applied to the entire site. And companies are aware that, you know, there are – you know, there is continuous improvement, so to speak, in – in how these things are regulated and they expect those things, within reason.

The only other thing I would say, however, is that the – the – the Act was amended a number of years ago now to clarify the requirement for a consent authority to reconsider and/or – you know, in that regard, condition existing operations that already have a planning approval in the case – you know, in these sorts of cases where we're proposing relinquishment and operation under a new consent, in that the IPC or the consent authority's not required to reassess the impacts associated with the existing operations, and I think therein, you know, there would be – it would be appropriate that – you know, stricter conditions or conditions that would make it difficult for those existing operations to continue would obviously, you know, I think not be appropriate in those circumstances unless there are particular standards that, you know, have been discussed with agencies and/or the company to impose over – over those existing operations. So I think there are limits on the power that the consent authority has to reach back in to existing operations, so to speak, Professor Barlow, if that makes sense.

PROF BARLOW: Thank you. Thank you, Mike, for that. Just to perhaps finalise that first point, you know, we recognise that, but also we feel that where they are combined and it perhaps places an extra load, and there's geographical differences that are occasioned by the northern development, that's where we might seek to – and we don't know yet, but we're just really wishing to explore that with you, which has been very helpful. Peter, do you have any supplementaries there?

MR P. COCHRANE: No. I think that – those answers – it's Peter Cochrane now. Those answers probably address some of our subsequent questions. I guess one of the areas that created a – not so much confusion, but where we needed to think carefully, was the varying descriptions in a number of the documents of the existing site and the – the proposed site, variously described as the northern extension area and other – and other terms. So that sort of made us focus on making sure that the conditions actually applied to where they were meant to, which is the existing plus the – plus the extension. But there are a couple of examples where, I guess, we just want to make sure that that encompassing of the existing conditions is clear enough in the proposed conditions.

45

PROF BARLOW:

MR SPROTT: If I may, Commissioner Cochrane, just – just to add on to that one, the – the conditions that – that we’ve recommended have looked at – for instance, in relation to biodiversity clearance, the recommended offset package that we’ve recommended in the conditions relates to the additional disturbance area. The
5 previous project approval had conditions which need to be applied and – and have offsets that must be retired in accordance with that.

MR COCHRANE: Yes.

10 MR SPROTT: But in relation to the – the interactions of the site, there is overburden being moved between the sites and some – some changes in surface water, as you’ve identified. And in our conditions, condition B84 and 85, we identify rehabilitation objectives that apply to the entire complex, so both the northern area and the new site. So that will apply to any landforms created under
15 both the previous and current consent. And condition B85 has been inserted just to provide clarity that while those objectives – and that’s for water quality, rehabilitation, etcetera – while they apply to all matters across the consents, the applicant wouldn’t be required to undertake additional earthworks for landforms that have already been constructed, except where those earthworks are required for safety
20 or stability or non-polluting works, but they wouldn’t be required to, effectively, reintegrate an established area of the mine, but where those two operations interact, that’s where those rehabilitation objectives tie the – tie the two separate sites together.

25 MR COCHRANE: Okay. Thank you.

PROF BARLOW: Thanks, Matt. That’s good. Perhaps we could move to our – our next area of questioning, and this is around the noise – potential noise impacts and the blasting and vibration. Peter, do you want to lead off on this, please.
30

MR COCHRANE: Sure. And our focus area has been the noise impacts of construction activities outside of standard hours because it does appear that the noise regulation is very much standard practice, I – I think. One of the minor concerns, let’s say, is that the noise criteria for the out of hours constructions are set out in
35 table 2. There’s a – well, Glencore has proposed to comply with the existing noise criteria of the existing consent, which is set out in table 2. Table 2 refers to a series of specific receiver’s criteria – noise impact at specific receivers, and there are new receivers in the – with the northern extension. I’m – correct me if I’m wrong, the reference to table 2 in those existing criteria mean the criteria, not the receivers to
40 which they apply under the existing consent? I – I hope I made that question clear. I think it’s only referring to the assessment criteria.

MR SPROTT: So - - -

45 MR YOUNG: Matt, have you got that in front of you?

MR SPROTT: I – I have that table in front of me. So the – table 2 relates to the existing criteria that currently applies to the existing Mangoola Mine.

MR COCHRANE: Yes. And the existing receivers?

5

MR SPROTT: And the existing receivers. Now, where there are – that table also identifies all other privately owned land, so where there are existing receivers who are not specified by a number – by a receiver number in that table they would have existing criteria of 35, 35, 35 and an LA1 of 45 for the night. So what Glencore is essentially proposing, in this respect, is to basically ensure that any construction activities undertaken outside of hours meets the existing project – operational project limits that would have applied to the Mangoola Mine if the Mangoola Mine just kept operating. So what they've tried to do in that regard is to basically provide all existing receivers in the area with the same level of approved noise that is currently approved to occur and not result in any out of hours construction noise that would exacerbate noise impacts.

10
15

MR COCHRANE: Yes.

MR SPROTT: By comparison, for instance, there are a few receivers under the proposal, which I – I'm sure we'll come to shortly, who would experience increased noise. There's some with less and there's some with more. And what they've sought to do is ensure that the construction activities in themselves that occur outside of hours do not cause an increase in those – those noise impacts to those receivers.

20
25

MR COCHRANE: Yes. Yes. And I've – I – I think you've answered our questions partly with your – Mike's earlier responses as well. One of them was just ensuring that the existing rights survive even – of acquisition and mitigation, that those existing rights for the – the current project survive into the new conditions of the consent.

30

MR SPROTT: That's – that's correct, commissioner. And there – there were a few receivers who – who would have potentially had different rights if this consent had have been assessed on – on its own as – as fresh, but Glencore had committed to ensure that any – anyone with existing acquisition or mitigation maintained those rights under the – under the new SSD.

35

MR COCHRANE: Yes. Okay. Snow, I – I think that covered the issues that I had on – in terms of noise impacts.

40

PROF BARLOW: What about – we were going to – because they're – they're slightly different, but they're in the same area – deal with, Peter, the - - -

MR COCHRANE: Oh, yes, blasting and vibration. Yes.

45

PROF BARLOW: The blasting and vibration. Yes.

MR COCHRANE: Yes. Yes.

PROF BARLOW: So - - -

5 MR COCHRANE: Sure. So one of the concerns we had with looking at the
blasting details – well, there were two, I guess, one of which was the EPA had
recommended a – a condition of one blast per day and the proposed conditions
suggest two. I – we understand that that’s possibly due to a lower level of blast –
potential blast impact, but if you could explain the – the – that movement from
10 recommended two to one. And the second question we’ve got on that is the blasting
impacts on aboriginal sites, in particular the rock shelters that – some of which sit
within the existing area and there are some new ones which would be affected by the
northern extension area.

15 MR YOUNG: So thank you for the question, commissioner. It’s Mike Young
speaking. I’ll – I’ll answer maybe the – the frequency of blasting, and then maybe
hand over to Matt on the aboriginal cultural heritage sites. In terms of the frequency
of blasting, a couple of things to say there. We’ve – we’ve done an analysis just for
the purposes of providing a comparison, and we’re happy to provide that to you
20 separately, about the blast frequency at open cut mines in the Hunter Valley. And
typically – the vast majority of mines are allowed to have two blasts per week. There
are a number of mines - - -

MR COCHRANE:

25 PROF BARLOW: Per day?

MR YOUNG: Sorry. Sorry, per day. Sorry, per day. There are – there are – yes,
Freudian slip there. There are a number of mines that – there are one or two that
30 have three, and there are – I think there’s one or two that have – have one, but,
essentially, you know, two or three is the standard for open cut coal mines in the
Hunter Valley. And there’s a couple of reasons for that and I’m just looking at – the
ones who have one blast per day are very old consents, so they’re consents from –
firstly, Mount Pleasant, which was approved in 1997, and the Ashton Coal Mine,
35 which is now ceased operations, which was approved, I think, around about 20 years
ago as well. So all contemporary mines are at least two or more blasts per day.

The second thing to say is that obviously you need a certain number of blasts in order
to extract the relevant amount of coal to obviously make, you know, the mine
40 profitable, to meet, you know, contracts and so forth. And the third thing to say is
that the – the issue is that the size of the blasts can be carefully managed, so not all
blasts are equal, and that often mines will seek that flexibility in – to have two or
three blasts per day to allow them to do a larger number of smaller blasts as opposed
to one larger blast, for example, that may then have greater impacts, in terms of
45 vibration and overpressure. So it’s not just, you know, less is less. In some ways –
you know, it’s important to realise that.

The other thing to say is that if you looked at the averages that actually happen in practice, whilst they seek that flexibility to allow two blasts to occur on a particular day, there's a corollary condition there that talks about the number of blasts per week, for example, and that does vary a little bit across the valley, but, you know, 5 you're looking at – you know, it's very rare that you would be getting – and, indeed, in many instances, not – not allowed under the approval, that you would expect to have two blasts each and every day. For example, with Mangoola we've indicated that at most they can have six blasts per week, so, you know, if they had two on one day and then two on another day and then two on another day, there are four days of 10 the week in which there'd be no blasts. But I think typically if you look at this across a whole year, the number of blasts is very much less than the maximum allowed.

The last thing I would say in that regard on the number of blasts is that the EPA 15 really doesn't, you know, regulate the number of blasts, provided that relevant dust and noise and fume requirements are met at the edge of the site under the EPL. Then really that's the main thing that matters, as opposed to managing the operational aspects of a particular mining operation. So I guess we have sought to allow the company to continue with the current requirements and we see no reason from an 20 operational, amenity or a cultural heritage – which we'll go into in a minute – point of view as to why we would want to restrict – and, indeed, potentially exacerbate or increase the actual impacts by restricting it to one blast per day.

MR COCHRANE: Thanks. Thanks, Mike. And just the actual formulation of condition B14, which says: 25

The applicant may carry out a maximum of two single blasts a day and six single blast events a week.

My rough calculations of two blasts a day, six days in a week – and they're allowed 30 over 52 weeks, minus public holidays, that allows you a total of about 600 single blasts – I'm not suggesting that's what they're doing – and six single blast events a week is 312 blasts. So how does this condition actually work when it says:

May carry out a maximum of – 35

The first provision potentially – I'm not saying it would, but potentially allows something like 600 blasts and the second one adds – is 300. It's the “and” between those two that I - - -

40 MR YOUNG: So they – they have to comply with both.

MR COCHRANE: Both. Right.

45 MR YOUNG: Yes. Yes. So there's - - -

MR COCHRANE: Yes.

MR YOUNG: There's two limits there, essentially. And what it says is that on a particular day, just from a blast point of view – and they have to get obviously specialised blast contractors in and they're – they're obviously quite tricky things to do and lay – they're wanting that flexibility to allow those blasts - - -

5

MR COCHRANE: Yes.

MR YOUNG: - - - to occur - - -

10 MR COCHRANE: Yes.

MR YOUNG: - - - which means that, you know, moving people out of the way and all the rest of it, you only want to do that, you know, fairly as – you know, as little as possible. They then do that blast. That allows them to get in there and – and obviously complete the extraction of the coal and move the overburden, etcetera. But what we're saying is that we wouldn't expect that to happen each and every day and we've put a restriction on an average per week. So - - -

15

MR COCHRANE: Yes. Yes - - -

20

MR YOUNG: So they have to comply with both, and that's the end. Yes.

MR COCHRANE: I – I – I understand that that's the interpretation, but that “and” really means with no more than six blasts – blast events a week rather than “and”, in a way.

25

MR SPROTT: So, commissioner, I – I think it – it relates more to the “may carry out a maximum of”, so it's the “a maximum of” that if - - -

30 MR COCHRANE:

MR SPROTT: If you were to read this as the applicant may carry out - - -

35

MR COCHRANE: Yes.

MR SPROTT: - - - (a) - - -

MR COCHRANE: Yes.

40 MR SPROTT: - - - a maximum of two blasts per day.

MR COCHRANE: Yes.

45

MR COCHRANE: Yes.

MR SPROTT: And (b) a maximum of six blasts per week.

MR COCHRANE: Okay. All right.

MR SPROTT: That is where it's coming at.

5 MR COCHRANE: Okay. All right.

MR SPROTT: It's, effectively, to make sure that a weekly average doesn't if we only regulated weekly, that could allow six blasts a day.

10 MR COCHRANE: Right.

MR SPROTT: It's probably – the other thing, just to mention here, is that given that they are seeking to operate the Mangoola mine and the northern extension area at the same time concurrently over the eight year period, it is quite feasible that they would
15 have one blast in one pit and another blast in the other site. So that's sort of why that flexibility is there, just to maintain the existing blasting.

MR COCHRANE: Sure.

20 MR SPROTT: And just quickly to touch on the EPA's commentary, if I may, those comments relating to one blast per day came in the EPA's January 2020 submission on the project - - -

MR COCHRANE: Yes.

25

MR SPROTT: - - - which outlined the EPA's recommendations for conditions that it would look to seek to impose under an EPL and would look to have reflected on the development consent. Once we finalised our recommended conditions on the proposal, we actually reconsulted with the EPA and I can provide a copy of this
30 through to the Commission. But on the 7th of December 2020 the EPA wrote back to the Department confirming that it is satisfied with the recommended conditions of consent. So it has reviewed the recommended condition relating to two blasts per day - - -

35 MR COCHRANE: Okay.

MR SPROTT: - - - and has confirmed that it is satisfied with that requirement.

MR COCHRANE: Okay. Great. Thank you.

40

MR YOUNG: And I would lastly say, Commissioner, that the formulation of that condition has been carefully crafted and we've certainly had no issues with compliance - - -

45 MR COCHRANE: Okay.

MR YOUNG: - - - you know, in implementing that condition across the State.

MR COCHRANE: Okay. Great. Thank you. Then, Aboriginal Rock Shelters. There are a number that are within and surround the existing operation and then there are also some new ones which seem to be sensitive, particularly those lying just outside the northern extension area and we were interested in whether there had been
5 any work on looking at the impacts of blasting on those shelters and whether that understanding of impact or not also applied to the northern extension area.

MR SPROTT: Certainly there, Commissioner. So there has been a lot of work done in that regard. We did pay particular attention to this in our assessment of the
10 project. If you have our assessment report in front of you?

MR COCHRANE: Yes.

MR SPROTT: If you were to look at page 68, there is a figure on page 68 which
15 shows you the location of the Aboriginal Rock Shelters, as well as two orange dots which represent two rock formations of European heritage significance, Anvil Hill and the so as you can see on that figure, the existing Mangoola mine has already mined to within 200 metres of a number of rock shelters within the existing
20 Mangoola mine footprint located in the Anvil Hill offset area. They have very strict conditions in the existing consent relating to the protection of those rock formations. And as part of the existing operations, they engage a qualified specialist to undertake annual reviews of what a safe blast limit would be for those particular rock features. Based on the strength of the sandstone that is present at the site, their existing blast
25 management plan for the Mangoola mine identifies that a vibration – a non-damaging limit of 200 mils would be appropriate for that sandstone.

MR COCHRANE: Yes.

MR SPROTT: The existing sites then apply to a four-fold factor to provide a factor
30 of safety to say that the limit they want to put through the sandstone is 50 millimetres per second in vibration as a maximum and that's what they operate to. And to date they've managed to operate within 200 metres of some of those sites without any impact being identified to those features. In relation to the additional rock structures to the west of the northern extension area, and I appreciate that this may not have
35 been depicted as well as it could have been in table 7.3 of appendix 10 to the EIS, but those additional rock features are located a minimum of 500 metres away from the blasting area and they would be expected to have no greater than 15 millimetres per second blast vibration. And that's using the largest possible blast that they are proposing over 1000 kilograms of heavy ANFO. So the absolute maximum blast
40 that could be undertaken would only relate to 15 millimetres per second of vibration at those features.

And what Glencore is committed to do, which is shown in our assessment report with the staged benching, is to scale its blasts to make sure that it meets the relevant
45 vibration limits at all sensitive receivers around the site. So in that regard, we're comfortable that this particular operator has quite extensive experience in managing blast impacts on sensitive heritage sites, particularly given its experience mining,

literally circling around Anvil Rock. And given that it has undertaken these activities far closer in the past to what these additional sites would be, we're comfortable that they could adaptively manage in the new area.

5 MR COCHRANE: Okay. Great. Thank you. Nothing further. That answers that question very well. Thanks, Matt.

PROF BARLOW: Thanks. Is that all in those areas, isn't it, Peter?

10 MR COCHRANE: That's so. Yes.

PROF BARLOW: Yes. Let's move to greenhouse gas emissions. Now, we have a few questions about, you know, the EIS and your treatment and treatment of conditions here. The applicant's, you know, estimations seem to be based on a
15 default value for future and we're talking about scope 1, scope 2 here. And, secondly, on existing operations in terms of electricity and diesel, in terms of those. So in your – as part of the conditions you've asked that they, you know, seek to apply efficiency measures which are detailed, is there any quantitative data, you know, of what those efficiency measures might achieve in terms of greenhouse gas,
20 you know, mitigation efficiencies compared with what the existing operations are? Are they going to be – you know, basically, we're asking are they going to be the same or are they going to be improved?

MR YOUNG: I'll kick off. It's Mike Young here and then I'll hand over to Matt
25 for some further detail. Yes, I guess with – Professor Snow, I mean, I guess with an open cut coal mine in regard to scope 1 there are limitations on what one can do in regard to scope 1 emissions, at least from the coal measures, because, clearly, the coal measures are the coal measures and there would be a certain amount of fugitive emissions. Obviously, some elements of scope 1, things like the use of diesel, and so
30 forth, and electricity, etcetera, you know, are more flexible, I suppose, in terms of the control measures. I'll get Matt in a minute to go through the specific things that they're proposing to do.

But, look, I think to answer your question, in short, I'm not aware that they're
35 proposing to do anything, you know, differently or significantly differently that would minimise or reduce or abate greenhouse gas emissions compared to what they're doing at the existing operation. Suffice it to say that, clearly, there is significant and financial incentive to minimise the use of diesel because, obviously, it's a cost to the business, as it is with electricity as well. So there are not just those
40 regulatory levers but there are also financial levers to minimise those impacts.

In terms of – we just did a little bit of benchmarking too for the benefit of this discussion in regard to other open cut coal mines in the Hunter Valley, in terms of the efficiency of the operation, looking at the CO2 equivalent emissions per tonne of
45 coal extracted and it's around two tonnes of coal per tonne – sorry, two tonnes of CO2 per tonne of coal which is very much the same as many of your other coal mines in the Hunter Valley which range from about 1.6 up to about 2.8. And, I guess, you

know, the 2 or 2.08 is very consistent with the average for an open cut coal mine in the Hunter Valley. But in terms of those specific measures, I would argue that they're quite material in terms of being deliberate in the design of the mine. And maybe, Matt, if you just wanted to sort of run through some of those very specific
5 measures that I think really do make a difference, in terms of scope 1 and scope 2.

MR SPROTT: Certainly there, Mike. So it's Matthew here. So what Glencore sought to do, they already implemented strategies at the existing mine to seek to minimise their scope 1 and 2 emissions. What they've done in designing the
10 northern extension area, they've looked to minimise the length of any haul road distances that they need to travel and they've looked at the gradients of those haul roads as well to make sure that the fuel consumption for trucks, obviously, steeper gradients consume more fuel than gentler gradients. So what they've tried to do is get that balance between shorter haul distances, so they're using less fuel, and
15 appropriate gradients on the haul distances. And they've looked to make sure that, you know, when looking at pay load analysis of what the trucks would actually transport along those haul roads, that they are operating in the most efficient way possible to minimise that diesel consumption.

20 And they've looked to schedule their activities. So, obviously, they've looked to make sure that all of their equipment is maintained and in a highly efficient state but they've then sought to schedule the activities, and this is in their preparation and what they currently do onsite as well, is to schedule their equipment to minimise downtime, minimise trucks sitting on idle in the pit not working but to actually
25 ensure that any trucks that are operating are operating continuously so that they are being efficient in their diesel consumption. And they're also seeking to ensure that their processing at the CHPP is energy efficient so that they're not drawing additional power to what would otherwise would be required in that preparation.

30 Probably, the other thing to note is that there is a balance as well between some of those aspects. Glencore has sought to improve the final land form of the existing Mangoola mine by transporting about 50 million bank cubic metres of overburden from the northern area back to the existing Mangoola mine to improve that final landform and surface water outcomes. So in doing that there is a longer haul
35 distance for that material to travel from the existing – or from the northern extension area. But there is an overall environmental benefit to the landform of doing that. And it also allows Glencore to achieve the landform in the northern area which has a lower profile and reduces visual impacts from the community.

40 So they have sought to minimise their diesel consumption in the actual extraction of the coal and operations but there are some of those other factors such as that relatively long overburden haul back to the main Mangoola mine which is in there but has been done for a specific purpose to improve that long-term outcome. And that's where, you know, given that they are doing that, we would consider that their
45 CO2 equivalent per tonne of coal is actually quite good. And the other benefit that they have at the proposed northern extension area is that they can utilise the existing infrastructure at the Mangoola mine so you're not having to clear new land and haul

in and develop new infrastructure. You can capitalise on the existing infrastructure to reduce that aspect of the greenhouse gas emissions.

5 MR YOUNG: I think the only last thing – it's Mike Young – just to comment on, just for a sense of scale, the – we talked about the fugitive gas emissions from the coal seam itself versus the, you know, the onsite fuel and electricity consumption and 70 per cent of the scope 1 and the scope 2 emissions are actually from the coal seams themselves and, therefore, really are, I guess, inherent with extracting the coal, as opposed to 30 per cent associated with things that maybe are a little bit more under 10 the control of the company, in terms of efficiency. So, look, hopefully, that's helpful but we certainly recognise that, you know, coal mines, both in terms of scope 1 and scope 2 and, indeed, scope 3 do result in significant greenhouse gas emissions and we do work with the industry to try and minimise to the greatest extent practicable, noting the broader policy arrangements in New South Wales and nationally and 15 internationally about minimising scope 3 emissions more generally.

PROF BARLOW: Mike, can I ask just a supplementary question there, and this is, perhaps, a more general question. You know, it's around fugitive emissions as you just very briefly pointed out, there is – has there been any work done by this mine or 20 other mines, is there any way to minimise those emissions? Is there any possibilities around there – I don't know what it might be. I guess the only thing I can speculate about is that, you know, perhaps, given that your removing the coal and tract in there that becomes fugitive but, perhaps, is there any work that's been done around the sort of fineness to which that coal is crushed to by the transportation affecting 25 fugitive emissions? Or other techniques that you might use.

MR YOUNG: Yes. I mean, obviously, open cut versus – it's Mike Young here – open cut versus underground is, obviously, a very significantly different proposition. Clearly, there's a lot more you can do in an underground context, in terms of 30 capturing the gas and using it for either flaring or generating electricity, etcetera. And a number of mines are now proposing to do that and, certainly, the industry is very interested in doing that from a an abatement point of view, as well as a commercial point of view. In terms of open cut, and, you know, I'm sure you've been to open cut mines before and so forth, really, there's very limited ability, really, 35 to do anything in terms of capturing that fugitive gas or doing anything with it like the underground.

But your question in regard to crushing, they don't actually crush the coal. So what they do is they wash the coal and, obviously, you know, they – through that washing 40 process remove impurities and it gets puts through various processes, you know, with the coarser coal versus the finer coal, etcetera. But apart from some incidental crushing, it's very different to, say, a quarry where you do actually, you know, need a certain aggregate size and so forth.

45 So I guess there would be some inherent crushing from the actual excavation of the material and putting it into trucks and so forth. But I do suspect that the vast majority of fugitive emissions would be occurring regardless, just from all of those

extraction processes. So I guess, you know, you can certainly question, you know, when you do talk to Glencore as to whether they're aware of any studies in that regard but, certainly, the Department is not aware of any technology or options for materially, you know, reducing that fugitive gas. Unless Matt's aware of something?

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MR SPROTT: The only one I might add to that one is that in preparing the EIS for the project, Glencore did review the feasibility of pre-draining gas from the coal seams. So, effectively, in a similar sense to coal seam gas extraction and so looking at pre-draining gas in the coal seams from the northern disturbance area. But the actual capital and operational costs and environment – well, not so much the environment but the capital and operational costs associated with that are quite large or quite a small area of land and amount of gas, in relative terms, when you're talking about establishing, effectively, gas drainage infrastructure.

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And so where an underground mine can economically capture that gas because it accumulates within the underground mine, it can be fed through the air systems, the difficulty with the open cut mine is actually being able to pre-drain that gas. They would need to actually go in and, effectively, undertake that as a full operation before they then went and undertook the open cut - - -

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MR YOUNG: Well, you'd also need to look at the saturation of the gas, the make up of the gas, whether it was sufficient volumes or sufficient concentrations to allow flaring. And, at the end of the day, you know, those emissions are still, you know – would go to the atmosphere, so to speak. There'd just be an issue of whether it was particularly high in methane and whether that methane, through a flaring process, could be converted to CO2 and, therefore, obviously, has a lower greenhouse intensity factor. But, certainly, unless I'm corrected by Glencore or Matt, I'm not aware that any open cut mines have ever done gas drainage ahead of open cut extraction - - -

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MR SPROTT: No.

MR YOUNG: - - - for the reasons we've just outline.

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PROF BARLOW: Yes. Well, thank you for that. Yes. We have just been speculating on that and that's a good discussion. Perhaps, we can - - -

MR COCHRANE: Snow?

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PROF BARLOW: Yes.

MR COCHRANE: Snow, it's Peter Cochrane. Just can I ask an additional question on that?

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PROF BARLOW: Yes.

MR COCHRANE: Looking at the international literature on open cut coal mines and the fugitive emissions from them, over a long enough period the emissions from abandoned coal mines exceed those from operating coal mines. So my question is, to what extent in the rehabilitation plans has minimising fugitive emissions been taken
5 into account from exposed seams? If there are any, and there may not be any, but there is a final void which is, I think, larger than the current proposed final void. So that - - -

MR YOUNG: It's very important, obviously, to minimise exposure of any coal
10 seams to oxidation because you can get issues with spontaneous combustion, and so forth. And so the rehabilitation plan would, in the main, be looking to ensure that all those coal seams are covered by a lot of dirt and rock. Look, there may be some – in the open cut voids, there may be some limited exposure of the coal seams but I suspect that those coal seams are likely to be – my understanding is they're probably
15 going to become lakes over time. Is that right, Matt, for these particular open cut voids?

MR SPROTT: Yes. So the open cut voids would be lakes, final void lakes, in the
20 landform. So those coal seams beneath the water would be covered by – or prevented from oxidation from the overarching water. But, yes, as Mike said, it is common. And, particularly, with high sulphur coal seams, not that these are high sulphur coal seams, but it is common to cap, I suppose you would call it, those coal seams that occur in – that are exposed in areas of the mine. It's more challenging on a high wall, naturally, because of the gradient of the high wall. So there are limited
25 amounts that you can do to completely – or to cover them with vast amounts of material but they are typically treated as part of that closure process.

MR YOUNG: I do wonder whether the international literature – I mean, it would be
30 interesting to look at that, Commissioners, as to whether to that is derelict mines that haven't been rehabilitated properly versus, you know, best practice rehabilitation as would occur in this case.

MR COCHRANE: Well, I think that's an excellent point. One last one, there are
35 four coal seams that are proposed to be accessed in this proposal. We know – well, from previous experience, that some of the Hunter Valley coal seams are gassy and others are much less gassy. I just wondered to what extent – and I don't think it has been taken into account – when the company or the consultant calculated the fugitive emissions, they used a standard factor that's in the greenhouse gas protocol, the international standard. That standard, I think, was published in 2004. There's been
40 some subsequent revisions to that in light of concerns that fugitive emissions have been underestimated in the past using some of those factors. It's a question, I guess, we will have for the proponents is the currency and the specificity of the emissions factor that they used in calculating the fugitive emissions in their EIS.

MR YOUNG: Sure, Commissioner. I'll just kick off but, yes, I mean, it's certainly
45 a matter that you could, certainly, put to the company and I'm sure they would have detailed information on that. I guess, at the end of the day, though Commissioners,

you know this is a coal mining proposal. Obviously, it's within a – you know, will be, you know, subject to a mining lease. It's been identified, you know, the relevant people that are mining exploration and geo science have indicated that it's an important resource. Obviously, it's adjacent to an existing, you know, operation. So
5 in some ways it's very efficient from that perspective. You know, we've done some benchmarking, looking at the greenhouse intensity of the operations in terms of scope 1 and scope 2 and it's very consistent with other operating mines.

10 In terms of the specific seams, and so forth, well, you know, I think with all these things, scope 1 and scope 2 is far outweighed by scope 3 regardless. And so, you know, the coal seams are the coal seams and, you know, we certainly haven't interrogated that to the extent that we would say, well, a project ought not to proceed because a particular seam is slightly more gassy than another seam and vice versa, etcetera. We'd certainly take a more holistic view about the relative benefits of the
15 project and all of those other factors.

But, Matt, was there any particular – and, I guess, the only other thing to say is, you know, the mine, in terms of our requirements and our expectations, we expect the mine to apply the relevant Commonwealth greenhouse gas accounting factors in the
20 absence of an alternative that's been accepted by government. And so provided they've applied those factors correctly then we would consider that's a reasonable estimate, even if there are some, you know, site specific matters that may alter that marginally. But, Matt, did you have any particular insight into that, in terms of the assessment?
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MR SPROTT: No. All I'd say there, Mike, is that it wouldn't be a particular coal seam that we'd be looking at the aggregate of the coal being extracted. For instance, is the gassier seam was the top seam, we'd need to consider whether sterilising all future seams would be due to one seam would be something that you would look to
30 do. So we're looking at, really, the aggregate of the coal coming out of the project, rather than particular coal in particular areas of the site. And the other – probably the only other thing to add there is that the existing Mangoola mine has an emissions cap under the Australian National Greenhouse Gas Mitigation Policy Framework and they're looking to continue to implement that for the continued operations.
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MR YOUNG: The last thing, I'd say there - - -

MR COCHRANE:

40 MR YOUNG: The only last thing I'd say there is, clearly, Glencore, as a corporate entity, has put a cap on its overall emissions from its coal mines. And so our understanding is that, you know, this would be within that overall cap.

MR COCHRANE: Yes.
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PROF BARLOW: Thank you, Mike. I think we'd better move on because we have probably run out of time. But never mind. Do you - - -

MR YOUNG: We've been too comprehensive, Snow.

PROF BARLOW: Well, we could continue that discussion for a while on greenhouse gases but - - -

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MR YOUNG: Indeed.

PROF BARLOW: - - - let's move to visual impacts. Peter, do you have some questions there on, you know, visual impacts which we haven't dealt with yet.

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MR COCHRANE: Just a little bit of explanation about how the sort of mitigation measures that the specific receivers might – or have already had put in place and how effective they are.

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MR YOUNG: Yes. Look, I will – Mike Young here and I'll hand over to Matt in a second. Look, my understanding is that the proposed new operations are largely not visible from residences due to the topography but when we were involved in the original assessment of the Mangoola mine, which was known as the Anvil Hill project back then, clearly, you know, visual impacts on surrounding residents was a key issue and we provided both acquisition and noise mitigation and visual mitigation for a number of properties and we've sought to roll those over into the current operations, even if the new areas are not likely to exacerbate that.

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But we also get – we also recommend visual mitigation, not just for mining projects but we certainly use them extensively in things like wind farm proposals as well, Commissioners, and, essentially, it's a landscaping agreement or requirement that the land owner can say, yes, I've got those rights, I'd like a mitigation treatment of my property. We'd expect Glencore then to, you know, look at the property, get a relevant expert to consult with the land owner about what they might like to see, in terms of screening, and of which parts their property and how close to their house and all of those sorts of things.

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And, typically, it involves – it can involve a range of things but, typically, it involves things like, essentially, planting tree screens in an appropriate part of the property, usually aimed at – it's not aimed at if you're down at your back paddock not being able to see the mine. It's aimed at, you know, if you're living room or lounge room or verandah in the immediate curtilage of your property, potentially, shielding the visibility of the mine. It can involve actual structures like fences and also window treatments and those sorts of things as well. But, in the main, in our experience, it's typically involved tree planting or, you know, vegetation screens of some sort. Matt, did you want to expand on that?

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MR SPROTT: Probably, the only other real ones that often come up – depends on the land owners personal views as well. Sometimes it's as simple if a coal conveyor or a power pole is a reflective colour or something that stands out from the environment, they might seek to paint those pieces of infrastructure a green or

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something that blends away. It's not normally large scale landform reshaping and landscaping on the mine site itself. It's to either blend away stark features or to have those intervening aspects.

5 And I think as Mike touched on, we've really sought to retain this from the original 2008 study that was done for the Mangoola mine. The new northern extension area isn't visible from any additional private residence due to the low profile of that operation and the intervening topography that wraps around the west and the north of the site. So this is really retaining those existing rights.

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MR YOUNG: Have we – can we comment on any number of people that have maybe triggered that and whether the - - -

MR SPROTT: Yes.

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MR YOUNG: - - - Commissioners maybe could even see that on their site visit or, at least

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MR SPROTT: Certainly. Yes. So you'll, certainly, be able to see, on your site visit, the topographic interference that sort of provides that attenuation effect. The original assessment report identified 52 residences that would be eligible for some form of mitigation treatment from the Anvill Hill mine. 17 of those who had acquisition rights have since been purchased and six other receivers have been purchased by other mining companies and then six of the people who had – or who had been identified as having visual mitigation rights have actually triggered their rights to treatment. So I'm sure that – I understand you're going on a visit next week to the site. I'm sure that the company could indicate too you where those properties are and what treatments might have been done at each of those six properties.

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PROF BARLOW: Thank you, Matt. Perhaps, to move to the last issue around recommended conditions, and we did have some questions about the alignment between your advice and the condition – on conditions and the Department's recommended – or the agency advice and what the final recommendations from you would be. Peter, there was one area - - -

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MR COCHRANE: I've got the - - -

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PROF BARLOW: I think we might have satisfied with Matt was the difference in blasting between the EPA and your final are there other ones there, Peter? I had one - - -

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MR COCHRANE: Yes. Thanks. The meteorological monitoring, the EPA asked for the continuation of the existing meteorological monitoring station that was in the existing EPL. The condition here just says prior to the commencement of the construction, they must ensure there is a suitable station operating in the vicinity of the site. We're just a little concerned that that was a bit vague when sometimes it's really important to have continuity of meteorological data. I think there's several

sites for which there are net data collected or at which net data is collected in the existing consent. So that was the question. I asked the specific request for the maintenance of a specific meteorological station. That has, certainly, some value in terms of consistency of interpretation. So if you've got a comment on that. And I do
5 have one more question - - -

MR YOUNG: Matt, did you want – sorry, Matt.

MR SPROTT: Yes.
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MR YOUNG: Did you want to comment on that?

MR SPROTT: So, look, what we've sought to do with the meteorological station, the way the condition is structured is it doesn't prevent that station being continued to be used for continuity of readings. But the existing consent, obviously, the Anvil Hill project being approved in 2008 and the mine being operating for 10 years, what we've sought to do is actually reflect contemporary standards in the wording of that meteorological condition. Now, the condition does allow for an alternative – suitable alternative to be approved by the planning secretary in consultation with the EPA.
15 So we would consult with the EPA and can approve the retention of the existing met station.
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But we also need to make sure that in retaining that existing met station that the data acquired through the methods used at that met station is suitable for monitoring the various aspects required under this consent. So the noise and air quality conditions, for instance, have particular requirements and have been undertaken in accordance with the noise policy for industry, for example. So what the condition seeks to ensure is that in making sure that that met station is there, rather than prescribing a particular met station, is to make sure that the met station that is at the site complies with the needs of that policy and - - -
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MR COCHRANE: Okay.

MR SPROTT: - - - should the company be able to demonstrate that the existing met station is able to meet those requirements, we would - - -
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MR COCHRANE: Yes.

MR SPROTT: - - - want to retain that met station.
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MR COCHRANE: Okay.

MR YOUNG: So, I guess, what we're saying – it's Mike Young here – that it is consistent and the EPA could anyway, on its EPL, provide more specificity - - -
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MR COCHRANE: Yes.

MR YOUNG: - - - regardless of what's in the consent.

MR COCHRANE: Okay. Yes.

5 PROF BARLOW: Yes. I think we'll pursue this during our field visit because - - -

MR COCHRANE: Yes.

10 PROF BARLOW: - - - there's nothing to stop them having two stations. One to deliver what you want Mike, but also, you know, from a rehabilitation purpose and in terms of this area, if there is a historic, you know, in climate record there, we would want to see that maintained.

15 MR SPROTT: If I could, Commissioner Barlow, I would just also mention that the EPA's advice regarding those particular met conditions was from January 2020.

PROF BARLOW: Yes.

20 MR SPROTT: And, again, that we received advice from BCD, MEG and the EPA on the 7th of December and the EPA reviewed that condition and was comfortable with the form and structure of that condition.

PROF BARLOW: Okay. Thank you.

25 MR COCHRANE: Thank you.

PROF BARLOW: Peter, one more?

30 MR COCHRANE: Yes, one more. Air quality and greenhouse gas management plan. The condition B31 requires the preparation of air quality and greenhouse gas management plan for the development. Can you confirm or not, the description of the development is really about the northern extension area. It's the area that's described in the EIS and, in particular, the map in appendix 2 of the proposed conditions. And that really seems to relate just to the northern extension area. Is
35 there an existing air quality and greenhouse gas management plan for the current operation? And would you not expect a new one to clearly encompass both sites?

MR YOUNG: And I'll let you comment on that.

40 MR SPROTT: So we would expect that to encompass both sites, Peter. The development layout plans in appendix 2 shows the key aspects of the overall development, obviously. It does, actually, identify the Mangoola coal disturbance area. So the existing disturbance area is identified within that layout. It's really trying to point out the key features of the sites. So things like the rail looper
45 identified the CHPP. So the development itself incorporates the existing and proposed – so the current Mangoola mine and the proposed mine – and that really

relates back to that conversation that we had earlier today relating to the fact that they'd be seeking to consolidate the overall site into one consent.

MR COCHRANE: Yes. Sure.

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MR SPROTT: So the development has described in the EIS includes those activities at the existing Mangoola mine. So it would capture that.

MR YOUNG: So, Matt, our conditions would define the development as both,
10 wouldn't it?

MR COCHRANE: Well, no. The development – it would be better if it said for the site because the site is very clearly – that term is very clearly defined as the sum of the existing plus the extension.
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MR SPROTT: So that is – you could – Commissioner, you could describe it as for the site. The reason we've sought to describe it as for the development is because the project is described in the EIS as containing the existing and proposed areas.

20 MR COCHRANE: Okay.

MR SPROTT: But both terminologies would be able to be utilised in that regard.

PROF BARLOW: regarding the development as the total project now?
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MR SPROTT: The development as the total project which incorporates and subsumes the previously consented Mangoola mine. Yes.

MR COCHRANE: Okay.
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PROF BARLOW: Thank you.

MR COCHRANE: Thank you.

35 PROF BARLOW: Brad, do you have any questions or details that we haven't covered?

MR JAMES: No questions from me, Snow.

40 PROF BARLOW: Peter, I think we're probably done as we have to talk to the proponent pretty quickly. So thank you, Mike, and thank you, Matt, for your answers today and we will continue on our gel. So thanks for your time.

MR SPROTT: Thank you. Thanks a lot.
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MR YOUNG: Thanks very much.

MR COCHRANE: Thank you both.

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[10.15 am]