Hume Coal and Berrima Rail Projects
SSD 7171 & SSD 7172

Mereworth Farm

HUMECOAL PROJECT

I am speaking from the land of the Wodi Wodi People of the Dhawaral Nation.

HUMECOAL PROJECT

UNSW SYDNEY
Indigenous Law Centre

We support THE ULURU STATEMENT

THE ULURU STATEMENT FROM THE HEART

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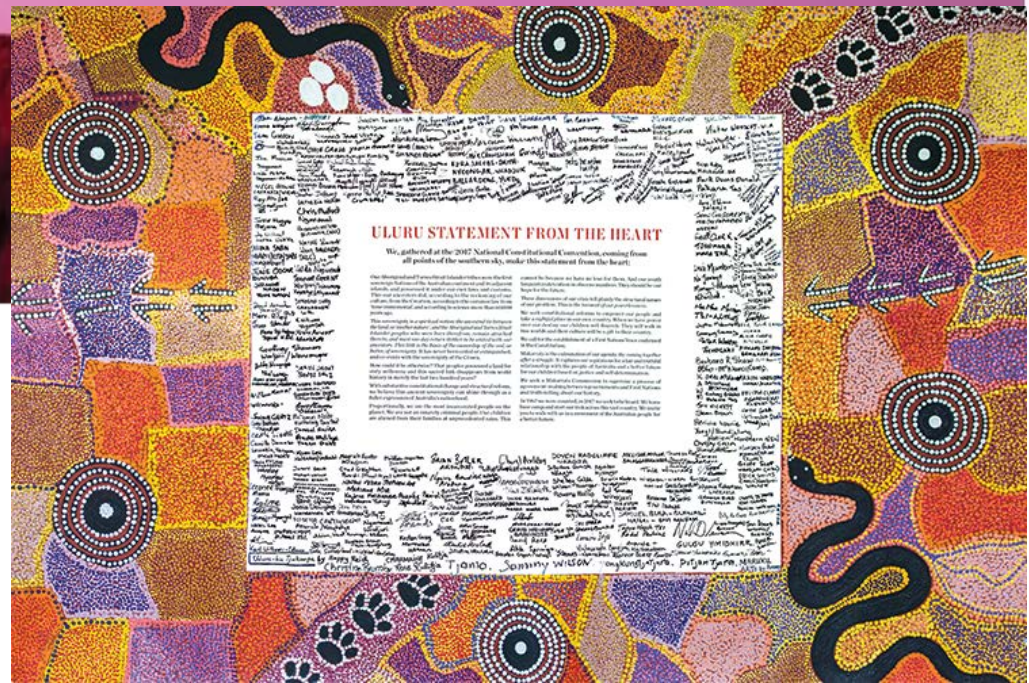

We support THE ULURU STATEMENT

The Uluru Statement from the Heart

@UluruStatement · Community

Some background of the speaker.

Vacation Work at Steelworks
BSc UOW
Masters of Geomechanics UNSW

Extensive roles at several U/G mines; including BHP/B, Shell, Anglo American in NSW & Qld.
More than 40 years in the U/G coal industry – a significant portion of that in the **Wongawilli Seam**.

Coal Geologist, Geotechnical Engineer, Resource Competent Person, Exploration Manager and a proud Member of the AusIMM (Illawarra Branch for 41 years).

Henry on the future of coal

PREMIUM quality coking coal will remain in high demand for the coming decades, BHP CEO Mike Henry believes and that view has helped inform his capital investment plans.

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“Increasing demand for metallurgical coal and in particular, the premium quality metallurgical coals. We think **demand is going to remain resilient.”**

“In a more **rapidly decarbonising world** we actually see that **creates more demand** for a number of commodities, **including the steel making raw materials**.”

Mike Henry addressing the Bank of America Metals, Mining and Steel Conference.

Coal part of the solution - not the problem

THE Australian coal industry is in a strong position to lead the world in developing technology that will help the world reach its zero emission targets while providing energy for nations with developing economies, according to the World Coal Association CEO Michelle Manook.

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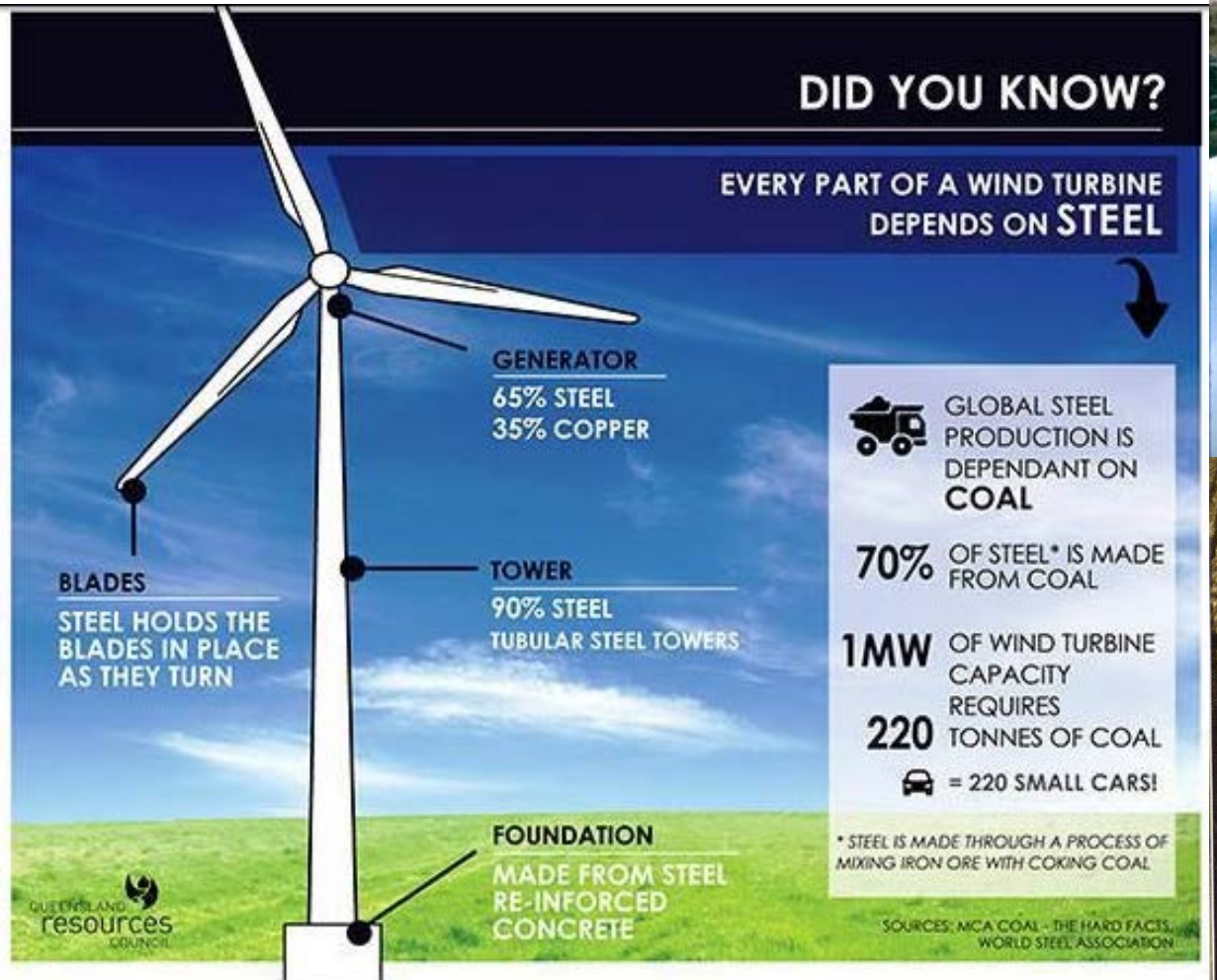
July 2021

Renewable Energy Depends on Manufacturing which depends on Steel, Coal & Concrete.



PROS (Page ix of the FAR)

- The WWSM is a **high-quality semi-hard coking coal** used for **steel-making.**
- Close to; existing rail, to industrial areas, local mining manufactures, the Port & BSS;
- **415 jobs** during construction and up to **300 jobs** during operations, local jobs;
- significant **capital investment** value in the project of approximately **$533 million;**
- generating around **$200 million in royalties**;
- generating **significant economic flow-on benefits** for the Southern Highlands; and
- providing an estimated **net economic benefit** to NSW of approximately **$194 million**.

THIS IS A STATE SIGNIFICANT DEVELOPMENT.

PROS – Environmental Credentials

- **Low impact underground** coal mine - despite claims, it is not nor will it ever be an ***Open Cut Mine.***
- Experts from both sides are all in general agreement, the **mine design is safe**.
- 2/3rds of all coal will be left in situ to **protect aquifer** and overburden.
- **No goaf development and no fracturing** - **Negligible subsidence.**
- Rejects go underground, **NO permanent surface reject emplacement** and associated disturbance.
- Proposed **surface infrastructure area** is already cleared for agricultural use – **no significant impact** on any **threatened species or communities**. The area is effectively devoid of the original, now endangered ***Southern Highlands Shale Woodlands***.
- Unilateral agreement amongst experts, confidence in the Water model that it is **'fit for purpose**'.
- **93%** of Hume's modelled water take is **licenced**. Hume has the licences and the right to use its water.
- 'Make Good' is **technically** achievable. Although DPIE consider getting agreements with landowners could be problematic.
- The Project's focus is the production of metallurgical coal to meet growing demand to contribute to a Renewable transition.
- **Scope 1 GHG emissions** will be **significantly offset**, with 20-40 Ha of **native plantings**, consistent with NSW Climate Change Policy Framework. Hume will **minimise** Scope 2 emissions. All **Scope 3** emissions to be accounted for by purchasers who must be signatories to the **Paris Agreement**.
- It is important to note that environmental awareness **comes at an cost**, a cost Hume is prepared to pay.

THIS NEW MINE IS A LEAP AHEAD IN ITS ENVIRONMENTAL BENEFITS.

CONS (FAR Page ix in Exec Sum & repeated in the Conclusions P78 FAR)

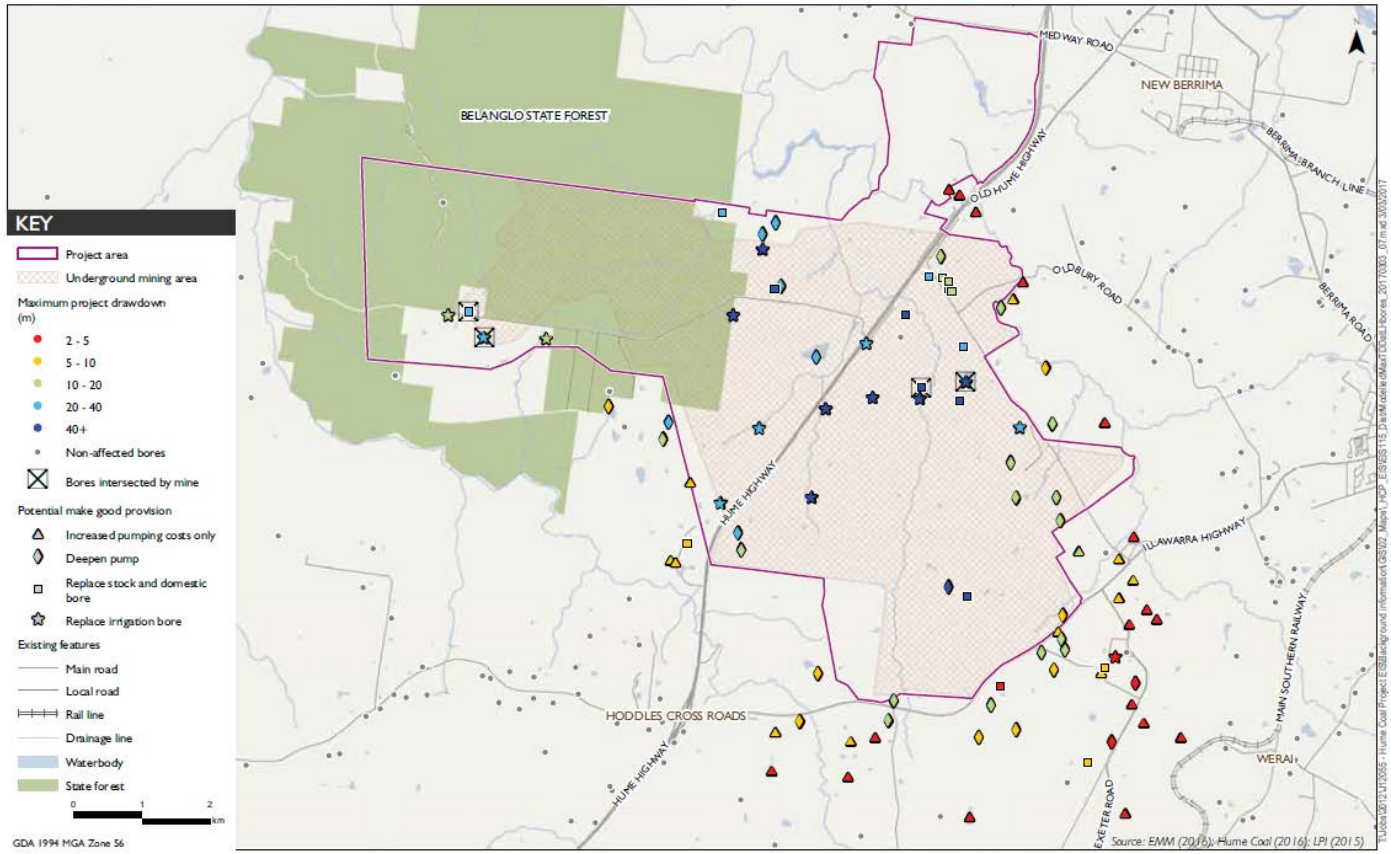
1. predicted **groundwater drawdown** impacts on **a large number of groundwater users**' and the practicability of the proposed **make good strategy**;
2. Given the very large number of significantly affected groundwater users,(see No 1) the **rural-residential** and s**mall-scale agricultural land** use of the area, **greenfields** nature of the project, significant **dispute and disruption** in the local community, **not compatible with the rural land uses** in the vicinity of the development.
3. **uncertainty re: potential surface water impacts on Sydney's drinking water catchment**, lack of a **contingency strategy**;
4. uncertainty about **mine design, stability of web pillars, risks health and safety, and environment**;
5. **amenity impacts** on rural-residential land users in the **Medway Road** area, including **noise and visual** impacts, as well as impacts on the **cultural landscape**;
6. residual risks can't be adequately managed through approval conditions,
7. not consistent with the **precautionary principle** of ecologically sustainable development **ESD**
8. **strong opposition** to the project from the local and broader community as well as the local Council, local community does not consider the project has **a social licence**;
9. Greenfield, land use (as per No 2) growing **tourism** and **heritage** landscape focus and predicted impacts.

Dot Point 1. Predicted **groundwater drawdown** impacts on **a large number of groundwater users**' and the practicability of the proposed **make good strategy**;

First IPC Hearing. DPE stated:-

Page 16 - Line 25 "**Certainly** the number of bores that are affected by this Project is **really unprecedented**".

Page 17 – 12 "The number of affected bores, privately held bores, would be **unprecedented in the history** that we've seen **on coal mining projects.**"



Project drawdown and potential make good provisions
Hume Coal Project
Environmental Impact Statement
Figure 7.10

Groundwater Resources and Bores

- Aquifers mainly within Hawkesbury Sandstone highly productive containing 980 registered groundwater bores in the region
- 46 bores predicted to experience drawdown >2m (above minimal impact considerations of the Aquifer Interference Policy (AIP)), including:
  - 22 with drawdown of 2-5m
  - 8 with drawdown of 5-10 m
  - 16 with drawdown of >10m
- 228 bores predicted to be impacted by cumulative drawdowns (mostly associated with BSO)
- Given majority of bores are relatively deep (>50m) and have large available drawdowns, it is predicted that only 10 bores out of the 46 have a 'high' risk of requiring 'make good' provision.

DPIE's preso on Tahmoor.

Up to 182 GWB previously impacted by Tahmoor.

Tahmoor pre-extension has previously affected up to **182** bores. Hume's impact is **94**. Yet somehow the DPIE calls Hume's impact '**unprecedented in all of history'**.
Its also worth noting Tahmoor's estimate was based on a **50%ile,** Hume chose to use a more **conservative estimate of 67%ile,** while **DPIE applied a 90%ile on Hume? You also need to consider timing. Tahmoor's 8 years v Hume's 20 years. These are just examples of how Hume has been treated differently by DPIE?**

So when DPE said Hume's impact on Ground Water Bores (GWB) was unprecented – they were wrong.

NSW GOVERNMENT | Planning, Industry & Environment

Ground Water Bores

- **All experts** agree Hume's water model is **"fit for purpose".**
- That is, there is across the board confidence in the modelling.
- The water model is by nature a conservative model.
- Unlike the current Make Good arrangements in this State, which requires the landowner to raise issues with the mine. Hume communicated with landowners to talk to them, to put forward our proposal to Make Good to them – to reverse the onus. **(PROACTIVE)**
- We have a **credible and achievable pathway** to make good each and every bore.

Groundwater Bore Influence

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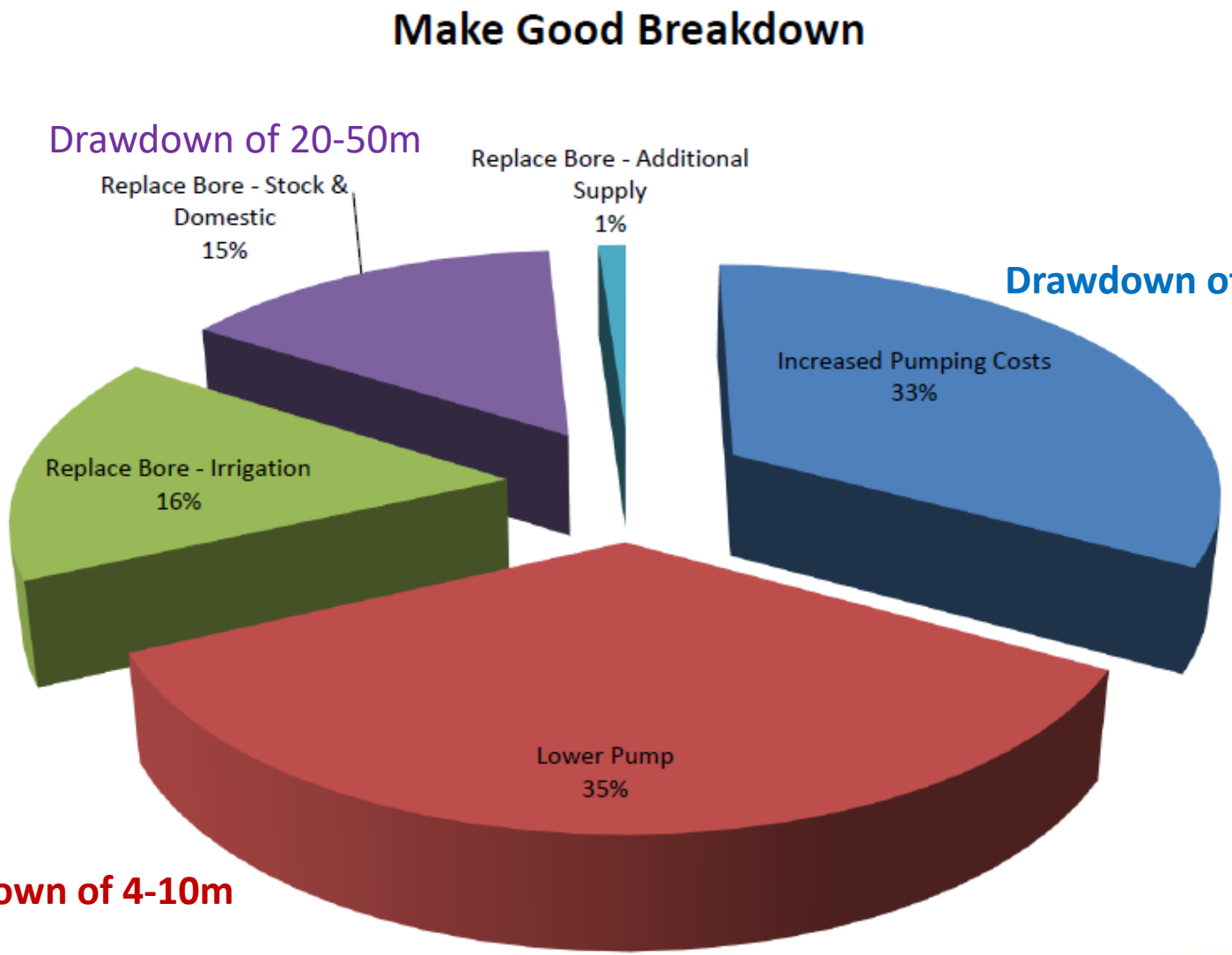
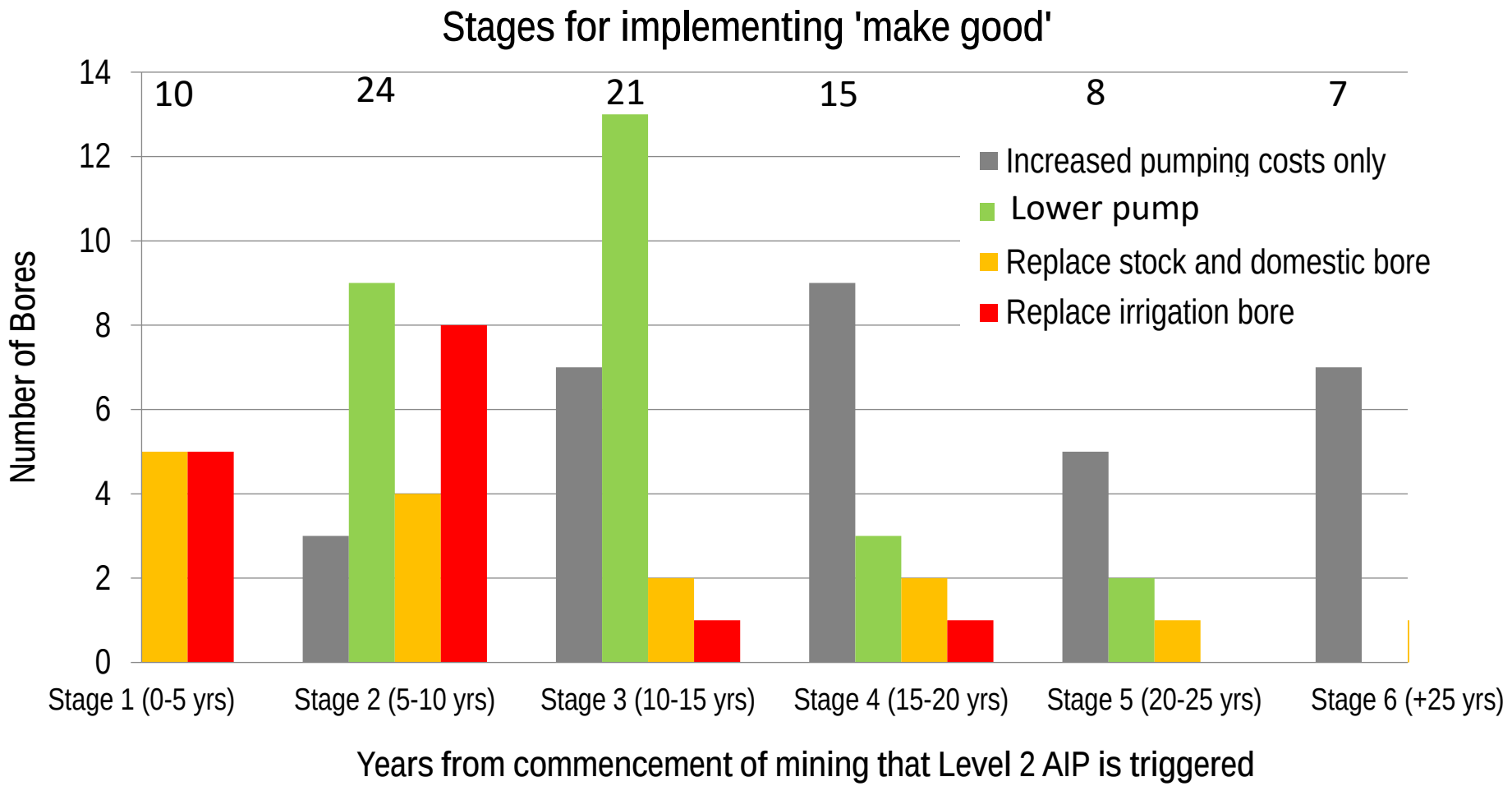
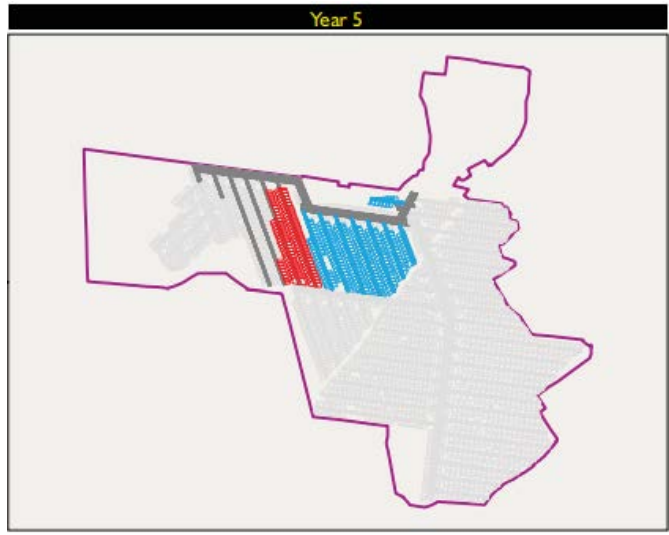
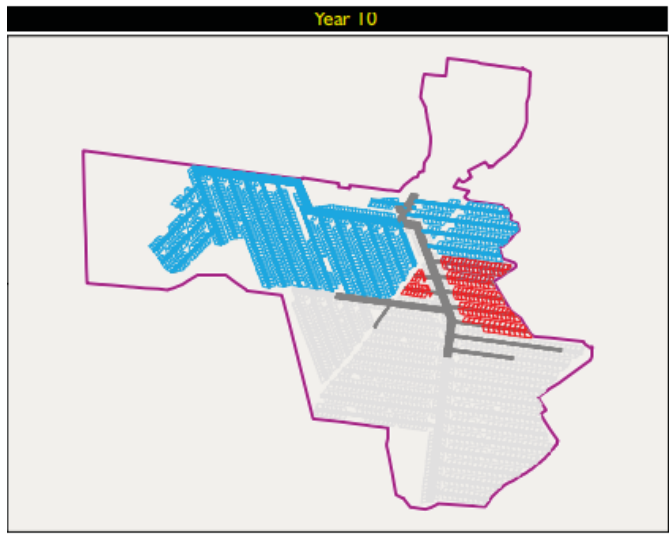


Groundwater Bore Impacts







A staged approach to managing the impact on bores over the life of the mine.

From the First IPC Hearing

Page 33, L44 "This is the **most significant damage to an aquifer of any mining project ever assessed in NSW** as covered by the department spokesperson this morning."

Firstly, the **solid** part of an aquifer is the rock mass. The mine design will ensure that there is **no goaf formation** and **no fracturing**. The Pinefeather design will leave 2/3rds of the coal in situ to support the overburden, unlike LW e.g. which remove 75%+ of the coal, and cause goafing and fracturing. Therefore the impact to the strata is negligible. There is '**no serious threat or irreversible damage',** which is in direct contrast when compared to bord and pillar or longwall mining. (e.g. Dendrobium refusal.) At the same time Pinefeather also **protects the surface from excessive subsidence**.

The second part of the aquifer is the **liquid** or the water that flows through the solid rock due to its permeability.

Hume Coal has purchased existing **water licences** which account for 93% of all the water it will need. These licences were all purchased on the **open market**. The water was already being taken by others. The mine will draw the water table down, but it will recover. Again there is '**no serious threat or irreversible damage'** to the environment.

There are no Environmental Precautionary Principle issues here.

In many ways we are no different to any other GWB user, with some exceptions - our usage will actually be monitored and under far greater scrutiny.

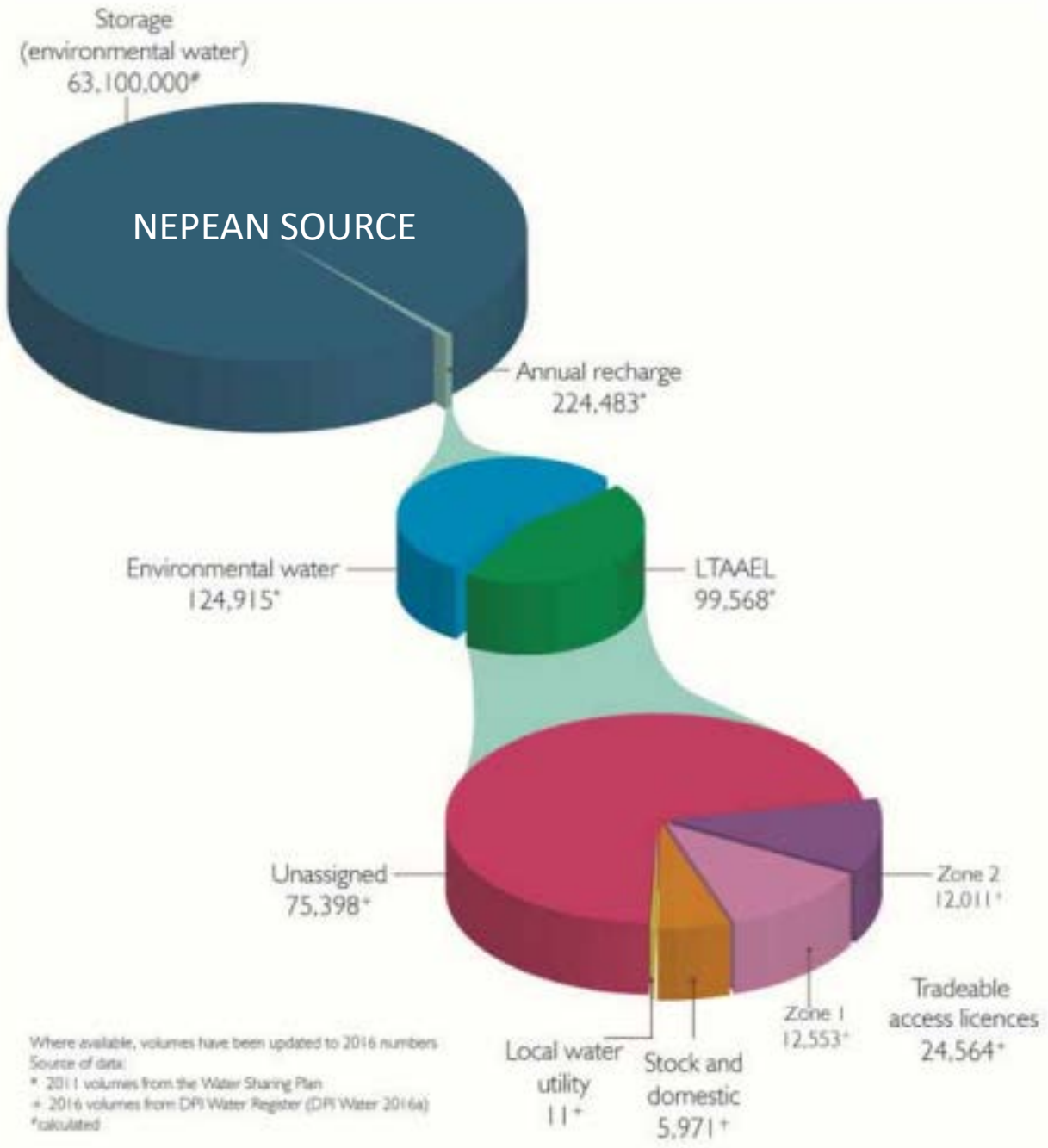
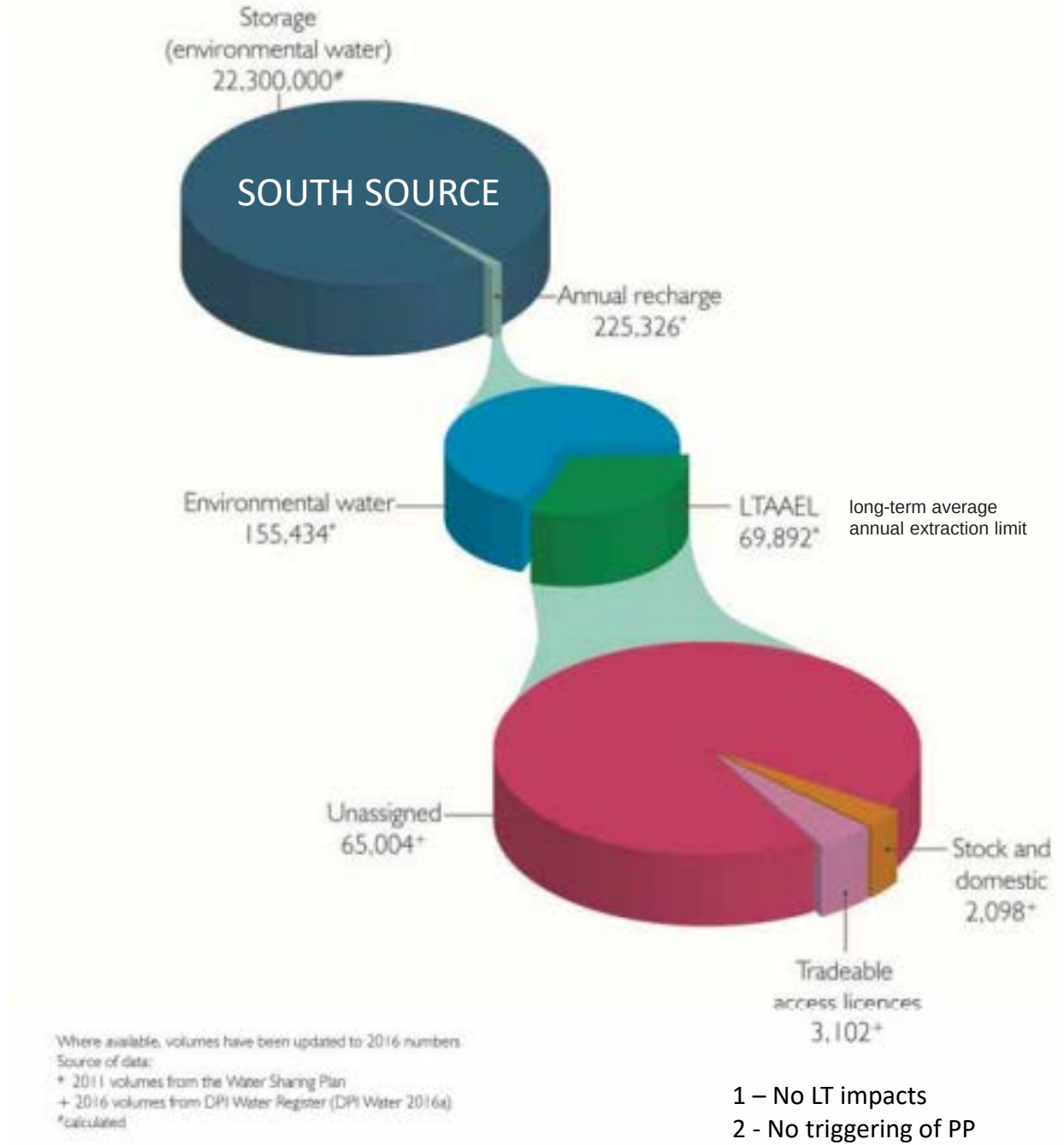


Figure 3.3 Sydney Basin Nepean Groundwater Source provisions (ML/yr)



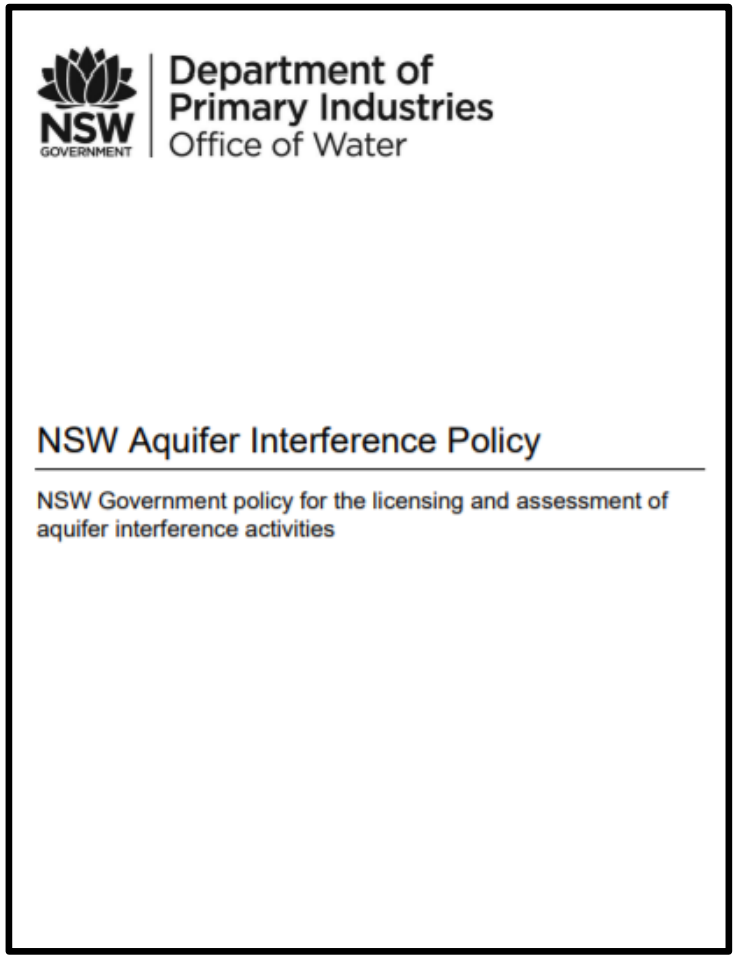
long-term average annual extraction limit

1 – No LT impacts
2 - No triggering of PP

Figure 3.4 Sydney Basin South Groundwater Source provisions (ML/yr)

Make Good

- Other u/g coal mines work within existing ‘Make Good’ provisions. Yet the DPIE consider its impractical for Hume.
- In reality the DPIE are ostensibly saying that if there are disputes they don’t want to help the affected landowners.
- Hume have outlined their proposed Make Good arrangements and are committed to achieving them.
- Hume have attempted to make contact with all affected landowners.
- Hume have offered to undertake Baseline Monitoring for all affected landowners. Approximately 15% of landowners have taken us up on that offer.
- If approved we will continue to strive to communicate with the landowners and restate the offer of Baseline Monitoring.



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"If you've been allocated a water license to use a certain amount of water …. and you want to grow rice or cotton with it, then in my view, go your hardest."
Richard Beasley SC

"An extraordinary story, one that every Australian MUST read."

Response to DPIE FAR **Surface Water** *(Para 325, bullet 3)*

*There remains **unacceptable uncertainty** about the potential **surface water impacts** on **Sydney's drinking water catchment**, given the **mine design risks** and the lack of a **contingency strategy** in the event that surface **water discharge** is required.*

This issue is about **excess water make** leading to an uncontrolled release on the surface. This issue could relate to any u/g mine and therefore 'mine design' isn't relevant. The authors have **over-reached**.

Following on from that point - WRT **risk/uncertainty** there is never any explanation as to why something is considered a 'high risk/uncertainty' or an 'unacceptable risk/uncertainty', these appear to be judgement calls or just exaggerations.

Based on modelling, 107 climate runs the PWD (720 ML) would reach capacity at its **shortest duration** @ **9.6 years,** and at its **longest duration** @ **16.5 years**. What this highlights is there is **substantial capacity** in the PWD to safely store water in the event that re-injection is unavailable for a period of time, even if that time were extensive.

Appropriate **contingencies** are available, even the DPIE acknowledge the timing for a WTP.

Water Management Plans and TARPS etc would be put in place and would ensure that this risk would be closely monitored and identified with plenty of time to act. Hume want to assure the Community that it will have management plans in place to ensure that the water will be monitored and controlled in a professional manner.

There will be **no surface leakage**. **NORBE doesn't come into play**. **Sydney's drinking water is safe -** at least from Hume. Which is more than we can say about the current state of the Wingecarribee River.

Dr Ian Wright

From the first IPC hearing.

Page 141 Line 46 “One of the **worst waterways for water quality** - I hate to say it, is **Wingecarribee River at Berrima**.”

Response to DPIE FAR **Mine Design** *(Para 325, bullet 4)*

- There remains considerable uncertainty about **mine design, particularly in relation to the stability of web pillar**, with resultant unacceptable risks to workplace **health and safety**, and potential to the environment."

If uncertainty remains why did DPIE (30/07/2019) shut down further expert meetings?
Why does DPIE completely ignore the CICM Report?

1 The following quotes come the **CICM report** 17/05/2019 Ref AREQ0003181. Requested by the **IPC**. (<u>This is the single most important government report on the mining method.)</u>
2 "It cannot be inferred that the (pinefeather) method is unsafe."
3 "the **use of bulkhead** seals is prevalent at underground coal mines in NSW."
4 "Underground mining has **inherent risks**, regardless of the extraction method."
5 RR is "primarily focused on ensuring mine operators …. **implement and maintain effective risk controls to reduce the risk to workers to as low as reasonably practicable.**

In Government NO-ONE knows more about mine safety than the CICM?

Pillar Design

Geotechnical Expert Russell Frith (Mine Advice) **designed** the mine, he **assessed** it and **proved** that it was robust.

World renown **3D modelling** expert Dr Keith Heasley **proved the stability** of the mine design.

Industry stalwart Professor Bruce Hebblewhite reviewed the mine design and gave it the '**good to go'.**

Russell Howarth an experienced practical miner who has introduced innovative features into the Australian Coal Industry provides **assurance that pinefeather is a safe method** of mining.

In their final reports the government experts (Galvin and Canbulet) are now "generally in agreement with Hume Coal's experts". All 6 experts + CICM are now in agreement about the mine plan.

Why have DPIE ignored their own Mining Experts?

Galvin & Canbulet Conclusions

Galvin says, "This is not to say that the mining method being proposed by Hume Coal cannot be safely and successfully executed."

"Changes in panel and pillar dimensions offer an effective engineering control for implementing the mining method such that it safely delivers target hydrological and surface subsidence objectives."

Canbulet concludes, "I generally concur with the points put forward by Prof Hebblewhite to seek agreement and Mine Advice's proposed steps to manage the risks associated with the proposed layout."

Hume commits to monitoring the underground geotechnical environment to ensure safety and stability. It will also investigate the behaviour of surface subsidence.

Principal Subsidence Engineer - PSE

- DPIE **completely misrepresents** what the PSE actually recommends (8/10/20).
- The PSE outlines methodology for **progressing with mining** with the potential for **amendments**.
- PSE requires a **35°AOD** for significant infrastructure. Hume have previously said that they were committed to '**work with the PSE to set acceptable standards**'.
- Hume Coal accept the PSE's recommendations.
- Hume Coal will undertake monitoring to demonstrate that predicted subsidence reflects actual subsidence. These studies will be provided to the PSE.
- In the response to the 21/08/2020 Agency Report by the PSE, Mr Doyle states that, **"Hume Coal will work with the Resource Regulator and the Principal Subsidence Engineer to ensure that mining will not impact upon Critical Infrastructure."**

Response to DPIE FAR **Amenity & Residual Risk** *(Para 325, bullets 5 & 6)*

*The project would have **significant amenity impacts** on a number of rural-residential land users in the Medway Road area, including **noise** and **visual** impacts.*
*The **residual risks** cannot be adequately managed through approval conditions, given the potential impacts and uncertainties.*

Firstly, this statement about the residual risks cannot be adequately managed is **blatantly wrong**. Approval conditions are a **proven method for addressing residual risk** in many jurisdictions.

Risk Assessments fundamentally assist in managing risks.

Why approval conditions weren't provided in the FAR, when they were specifically requested by the IPC in 2019, is anyone's guess. The IPC report (27/05/2019, Para 485 Page 121) requested conditions of consent, it says "The Commission also notes that consideration of conditions of consent has not formed part of the present process (i.e. PAR) and would **need to be given detailed consideration at the determination stage**."

Response to DPIE FAR **Amenity & Residual Risk** *(Para 325, bullets 5 & 6)*

*The project would have **significant amenity impacts** on a number of rural-residential land users in the Medway Road area, including **noise** and **visual** impacts.*
*The **residual risks** cannot be adequately managed through approval conditions, given the potential impacts and uncertainties.*

Interesting to note that in the (PAR), Noise was considered capable of being '**adequately managed**' and DPE suggested 6 ways to address the issues (Table 11). Also in the PAR, **Visual Impacts** don't rate a mention.

Nevertheless, Hume acknowledges that there will be **Visual impacts** to 4 landholders on Medway Road (based on DSM) with **Acoustic impacts** to 11 landholders along Medway Road: **Hume will work with these and all local landowners to mitigate and minimise impacts.**

- 9 dwellings predicted to experience 'marginal' residual noise and entitled to voluntary mitigation under the VLAMP (existing arrangements). Discussions have been held with some landowners.
- 2 dwellings predicted to experience increased residual noise levels and are therefore entitled to voluntary mitigation and acquisition. 1 property has already been purchased. Landowners engaged re: noise abatements.
- DPIE accepted amendments for temporary rejects stockpile.
- Mine site is adjacent to the Hume Motorway – 25,000 movements/day each way.

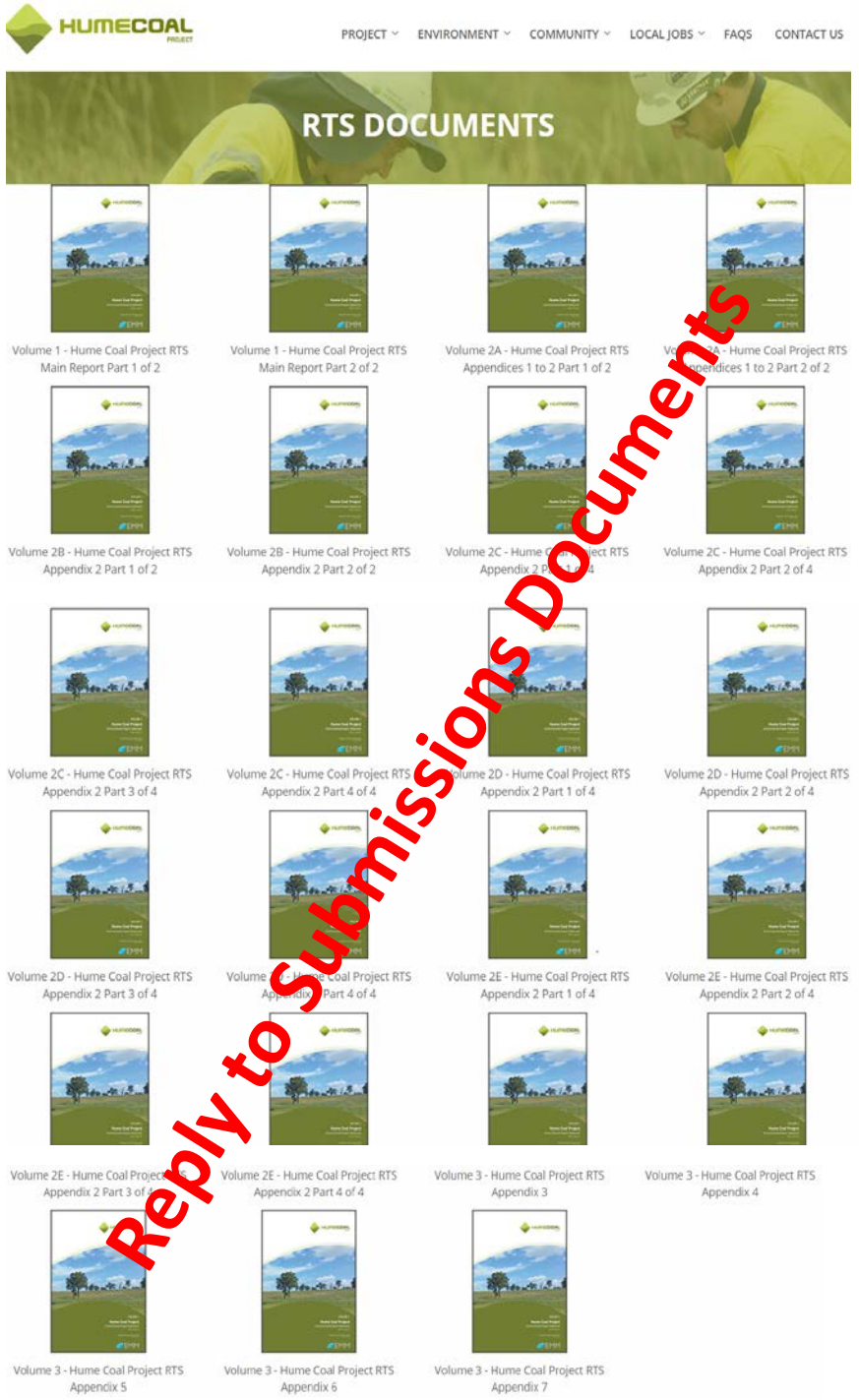
Response to DPIE FAR **Opposition and Social Licence, Site Unsuitable and Greenfield** *(Para 325, bullet 8)*

*There remains **strong and long-standing opposition** to the project from the local and broader community and Council.*

The updated Social Impact Assessment (SIA) considered the findings from the community engagement activities, submissions, academic research and technical studies to assess the consequences of the Hume Coal Project against the revised baseline study.

All the identified social impacts (positive and negative) that were supported by evidence and the perceived impacts were able to be effectively mitigated and managed using established strategies and the adoption of transparent community and stakeholder engagement strategies. Which are outlined in the Social Impact Management Plan. *(See section 9 of Appendix J of the Hume Coal IPC Response Report)*.

Hume **listened** to, **studied** and **responded** to the local community issues, we **replied to all concerns** in our "**Reply to Submission**" documentation.



Legitimacy, Creditability and Trust.

Hume has been part of the local community for 10 years. It has always had an open door policy for members of the community.

It has listened and engaged with the local Community.

Response to Submissions (RTS).

It has modified its mine plan to minimise impacts.

It seeks an ongoing partnership with the community.

It has assisted many local organisations.

Sustainability is a goal for our business.

Response to DPIE FAR **Greenfield** *(Para 325, bullet 9)*

*The site is not suitable for a **greenfield** coal mine given the rural-residential and small-scale agricultural land use of the area, along with the **growing tourism and heritage landscape focus**, and the predicted **impacts on these land uses**;*

Fundamentally, there is no government policy that prohibits mining in greenfield areas. In fact the **government are currently releasing new exploration areas** – e.g. **Wollar**. Why do that, if Greenfield's are going to be rejected out of hand.

The DPIE actually acknowledge that "this does not directly apply to Hume" (page iii Exec Summary last para) – so I don't understand why DPIE paints just about every concern raised as being worse, because it defines Hume as a 'greenfield' site. This tends to reflect that DPIE are not considering this Project fairly.

The DPIE have not actually defined what a 'Greenfield' is. I have always taken it to mean an area that has not had previous mining. But some definitions talk about lack of exploration. So I guess it isn't well defined. My personal opinion is that this area has been totally denuded of nearly all its original habitat and fauna, to try and convey that this area is a 'greenfield' is a stretch. Without belittling it, this area is mostly a cow paddock.

Regarding the unsuitability of this site. How can a cow paddock be unsuitable, but the township of Bargo with hundreds of houses impacted be acceptable to DPIE?

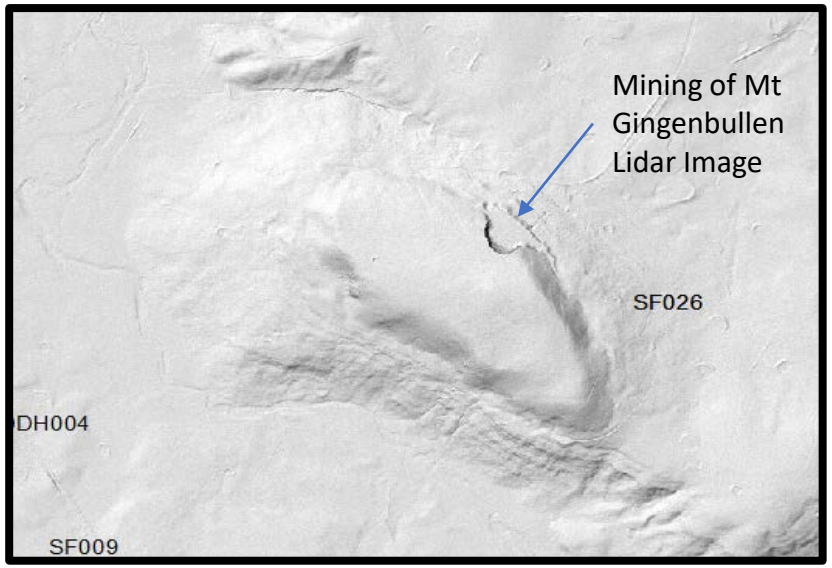
Irrespective of whether a mine is new or if its an extension, it should be **"assessed on its own merits".**

Response to DPIE FAR **Greenfield** *(Para 325, bullet 9)*

But just for the record. Both the **Wongawilli** and the **Tongarra Seams** have **existing**, albeit historic, **mine workings** in the Authorisation. (I photographed the adits shown below).

In addition although, not coal mining, but nevertheless still within the Authorisation, A349. Mount Gingenbullen has had mining as indicated in the Lidar image below.

The whole issue of Greenfield is not relevant to the Hume Coal proposal. So why has it been plastered throughout the FAR?



Response to DPIE FAR **Tourism** *(Para 325, bullets 8, 9 & 10)*

*The site is not suitable for a **greenfield** coal mine given the rural-residential and small-scale agricultural land use of the area, along with the **growing tourism and heritage landscape focus**, and the predicted **impacts on these land uses**;*

Hume believes the Project will see an **immediate and positive impact for tourism in the area**.

1) Growth of canola fields have attracted hundreds of tourists to the area. More accessible this year. Positive.
2) Remembrance Driveway facilities on the Old Hume Highway, need a face lift. Hume recognises Australian contribution during the Korean War and the grateful respect that South Korea has for Australia's sacrifice.
3) Hume has assisted NSW Fisheries to restock Medway Dam. Quite Fishing activities.
4) Hume to seek input from Community on how to get the best out of the Mereworth.
5) Hume will continue to support local communities.

We believe the Project will cause tourism to grow.

Response to DPIE FAR **Heritage NSW** *(Para 325, bullet 9)*

*The site is not suitable for a greenfield coal mine given the rural-residential and small-scale agricultural land use of the area, along with the growing tourism and **heritage landscape focus**, and the predicted impacts on these land uses;*

Hume extended an invitation to Heritage NSW (via DPIE) to visit Mereworth - to see the property for themselves. This invitation (5/08/2020) was reportedly, never passed onto Heritage by DPIE.

Heritage NSW in their Agency report (Ref DOC20/2378500 19/06/2020) claimed that **they had conducted their own 'assessment'** on the Hume Coal Project (Page 2, Paragraph 1). When asked to provide a copy of their assessment Heritage sent back historic work done by others. Further requests fell on death ears. And so a formal complaint was made regarding their 'submission'.

A meeting with Heritage was held 9/12/2020. During discussion some of the people present dug their heels in and maintained their claim about their assessment. However, the Team Leader **acknowledged they had not undertaken a professional assessment of the Mereworth House and Gardens and apologised**. This took courage and leadership and I openly acknowledge the Team Leader for correcting this.

Because of their view regarding 'cultural landscape', Heritage recommended **at the very least** that **all the native screen trees and shrubs planted by Hume** (some 4000+) **should be removed** following the completion of the Project.

Like most of the Heritage claims, I find this all a bit hard to swallow.

IPC transcript with SHCAG

Transcript Meeting of SHCAG (Coal Free) with the IPC. 11 Feb 2019

Next slide, Alan. So this is a prediction that I've presented in our ground water model and you can see – and I should just be clear that this model represents the mine plan. It includes bulkheads and we made a pragmatic assumption saying, "Look, these bulkheads are going to be open for a while. It's somewhere between
5 probably two years, but we tested five to 10 years that these things were open before they could put a plug in. I didn't assume any longwall mining. I know – I've been – Hume objected that I simulated this is a longwall mine. At no stage have I represented this mine plan as having fracturing or ..... or anything longwall to do with it.

April 2014 SHCAG Groundwater Study

The cases were also run under a set of hydraulic conductivity assumptions that simulate the impact of the fracturing of the Hawkesbury sandstone that will occur as a result of the subsidence caused by the long wall mining. As expected the mine inflow increased when this factor was built in, with the inflow in the standard case rising by 2 ML/d to 13 ML/d and the inflows in the upper and lower cases rising by 3 ML/d and 0.5 ML/day respectively.

10. Modeling the impact of mining

The mine plan that will be adopted by Hume Coal is unknown at this time, but some reasonable assumptions can be made. It was clear from coal isopach data; the locations of faults, and; coal quality data that mining would most likely include the 4.5 km^2 locations marked No. 1 to 4 in fig. 2. For modeling of the initial phase, area No.1 was used.

An assumed larger mining area of 45 km^2 (shown with a grey outline in fig.2 was also incorporated in model simulations, which was considered representative of a 20 to 40 year mine life.

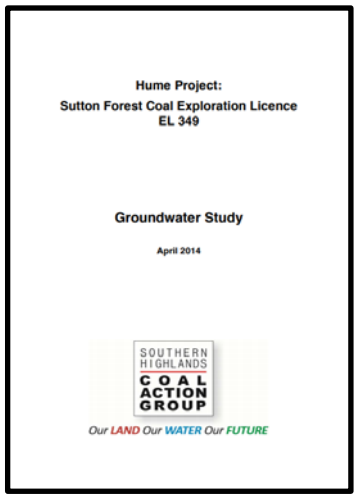
7.1 Planning

The overall modelling approach is well designed and carefully considered. Simulation of long wall mines can require a complex numerical representation of time-dependent phenomena. The approach to simulate complexity and simplicity in the model code and the techniques used to derive engineering estimates of mine-inflows demonstrates a good knowledge of problem conceptualisation and effective groundwater modelling practice.

The model predicts the envelope of possible groundwater impacts for a long-wall mining operation, or a bord-and-pillar mining operation in which engineering controls are not employed or engineering controls fail. The model does not simulate engineering controls such as grouting that might be employed to reduce groundwater inflow into the mine workings through natural joints or fractures.

7.4 Model Application

SHCAG WATER MODEL
Pells, Martin & UNSW


Hume Project:
Sutton Forest Coal Exploration Licence
EL 349

Groundwater Study

April 2014

SOUTHERN HIGHLANDS COAL ACTION GROUP

Our LAND Our WATER Our FUTURE

- Plan and section views.
- Dark red/brown areas is about 160m+ in the plan view, but in the sections the **drawdown goes down to <u>Sea Level</u>!** Clearly, this is impossible!
- Also note the title – with **fracturing** 45sq km **instantaneous** mine. Which means all goaf and **fracturing** are introduced in the blink of an eye.

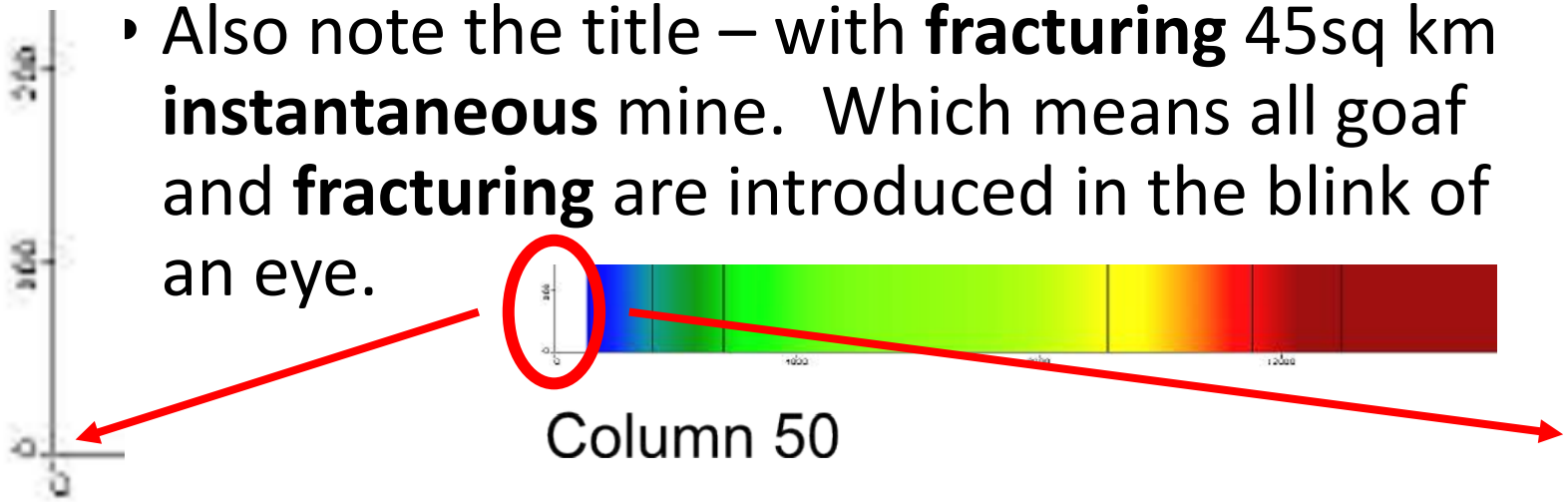


Figure 35 – Drawdown in Layer 4, standard values

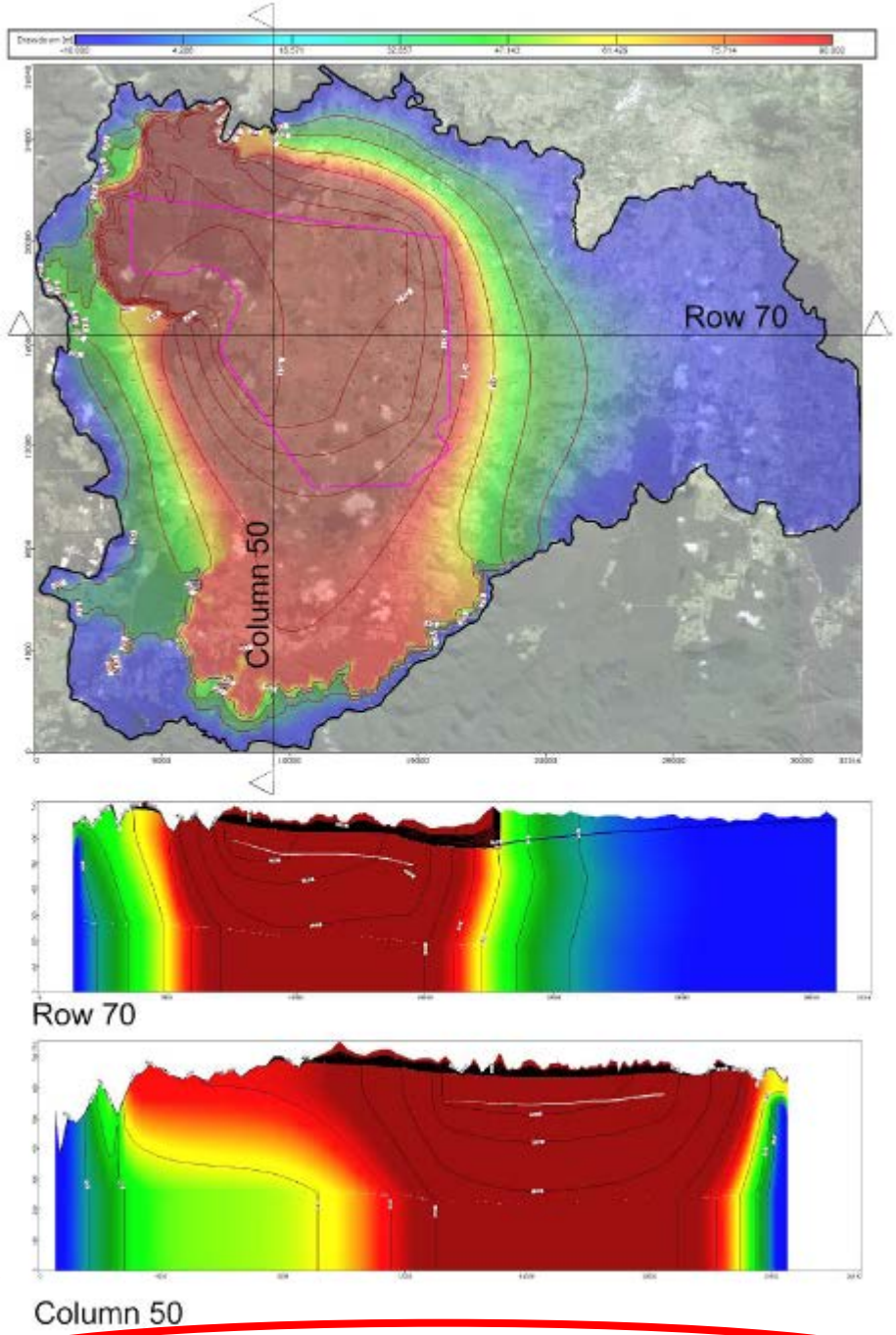


Figure 35 – Drawdown in Layer 4, standard values with fracturing, Instant 45 km^2 mine, 40 years elapsed.

HUMECOAL PROJECT

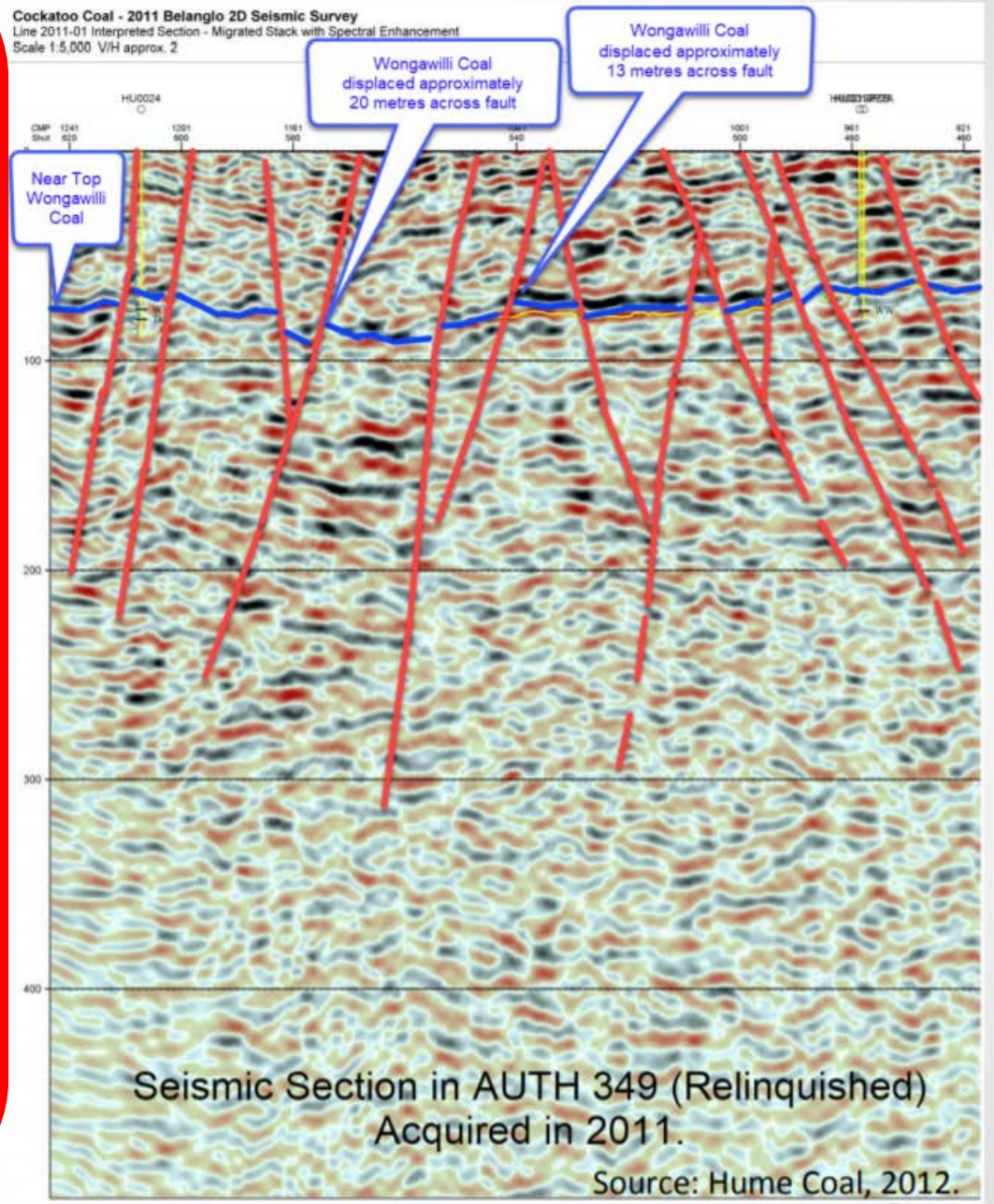
IPC Meetings with SHCAG 11/02/2019 and again with Coal Free Southern Highlands 29/06/2021

Geological Complexity

- Seismic Data demonstrates that:
  - faulting places the Hawkesbury Sandstone horizontally against the Wongawilli Coal
  - The structure of the top of the Wongawilli coal does not "...dip gently from west to east...at...a grade of 1 in 100"(Fitzsimmons & Doyle, 2017). Rather, it is faulted and is involved in both anticlinal and synclinal features
  - The Wongawilli Coal is highly fragmented into separate and non-contiguous bodies across faults.

CONCLUSION:

- Geological structure within AUTH 349 is much more complex than the Operator has portrayed in the proposals.



Seismic Section in AUTH 349 (Relinquished) Acquired in 2011.

Source: Hume Coal, 2012.

IPC with SHCAG Transcript 11 Feb 2019

Now,·what·do·I·mean·by·that,·well,·I·will·explain·what·I·mean·by·highlighting·some·things·on·the·slide.··First·of·all,·in·the·profile,·these·red·lines·that·are·drawn·here·are·5·fault·lines·interpreted·through·the·earth.··Just·to·give·you·an·idea,·this·area·from·the·left·here·over·to·the·right·is·of·the·order·of·about·three·to·five·kilometres.··And·we're·looking·down·here,·about·one·kilometre·depth·here,·and·around·about·500·metres·to·the·base·of·these·boreholes·here,·and·that's·in·round·numbers.····10·The·reason·it's·round·is·because·there's·a·scale·down·here.··That·is·not·actually·depth.··That·is·in·—·that's·recording·time.··That's·how·much·time·it·takes·for·sound·to·bounce·off·the·rock·surface·and·be·received·at·the·surface.··And·there·are·ways·of·roughly·calculating·what·that·is,·and·that's·what·we·tie·these·boreholes·in.··So·these·are·the·fault·marks·here·along·these·plains,·and·also·the·—·there's·a·horizon,·which·is·15·this·marker·here,·this·blue·line,·which·is·cut·up·by·the·faults.···¶ *Seismics p11-20*

1) **Depth of image is actually about 500m – close, but still not right in the scheme of things.**
2) **Boreholes are about 100-120m depth here, not 500m. Well that's a pretty significant stuff up.**
3) **Our deepest hole in the entire lease is actually only 215m deep. (HU0019PZA is only 108m deep.)**
4) **Its pretty clear these guys simply don't know what they're talking about.**
5) **The Wongawilli Seam has a range of depths of between 80 to 180m depth. They are out of their depth.**

SHCAG & IPC

INTERPRETATION NOTES

Lines acquired in the Belanglo Forest (2011-01 - 2011-10) are considered to have poor data quality primarily due to the adverse near surface conditions which exist. For this reason no structures have been interpreted with any confidence.

An attempt to map the WW horizon has been provided however, due to the poor data quality this interpretation should be used as a guide only.

DEPTH CONVERSION DATA

The vertical scale of this section is referenced to Two-way Time.
The following is the approximate time to depth correction.
Please note that these sections are referenced to a 740m seismic datum.

0ms = 740m (Australian Height Datum)
100ms = 590m (Australian Height Datum)
200ms = 440m (Australian Height Datum)
300ms = 290m (Australian Height Datum)

N.B. In the presentation to the IPC **someone covered up the comments** regarding Interpretation.

Cockatoo Coal - 2011 Belanglo 2D Seismic Survey
Line 2011-01 Interpreted Section - Migrated Stack with Spectral Enhancement
Scale 1:5,000 V/H approx. 2

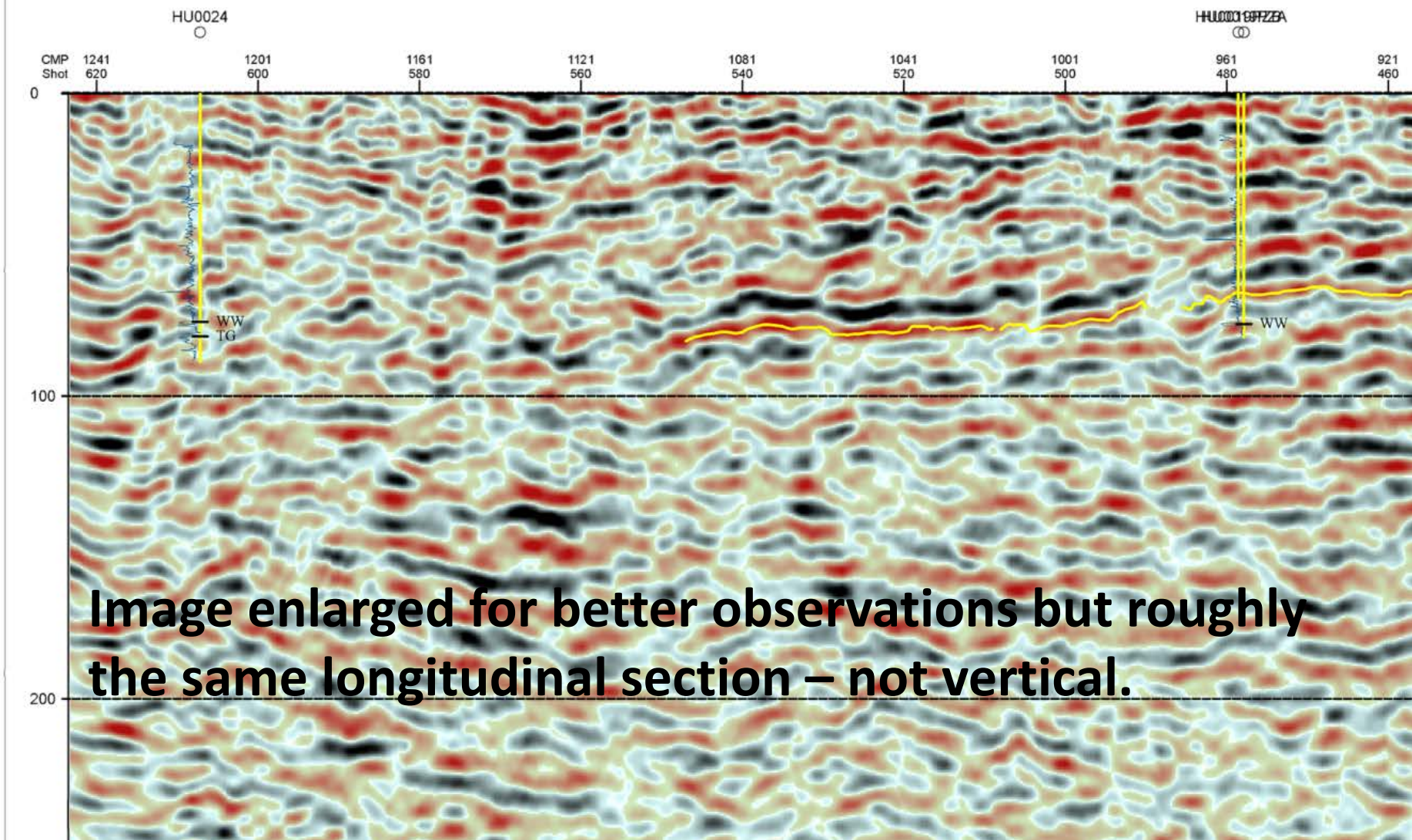
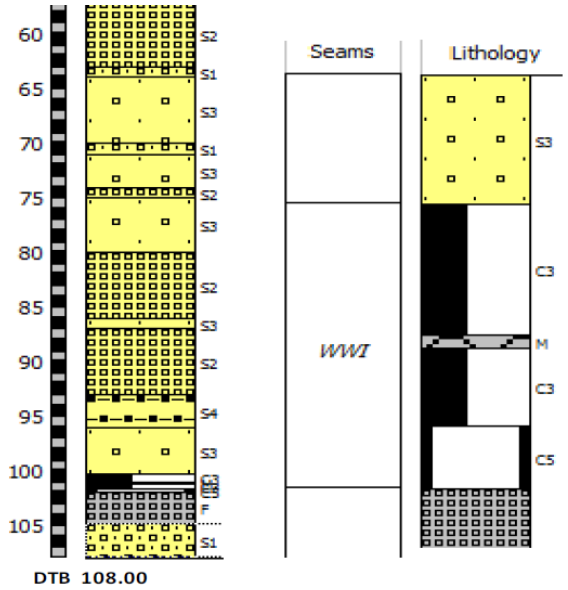


Image enlarged for better observations but roughly the same longitudinal section – not vertical.

HUMECOAL PROJECT

HU0019PZA



Area relinquished due to lack of coal.

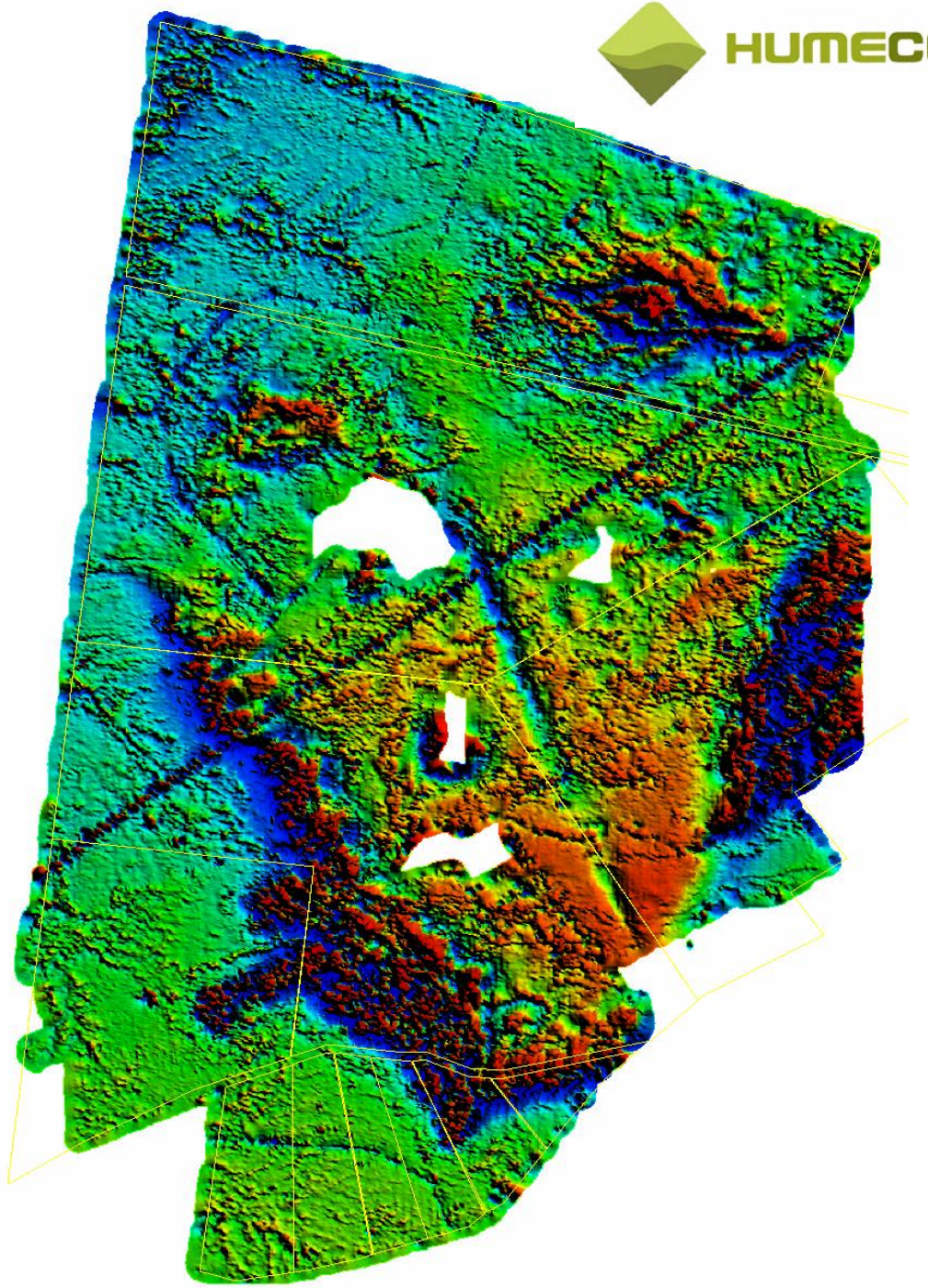
No Geological Information?

The **SEARS did not request or require any geological information**!

Nevertheless, **all geological information was provided to the NSW Government.**

MEGS reviewed the data and issued statements to the effect that the Coal Resources were economic.

Hume has significant geological data.



Coal Mine Jobs

- Environmental
- Surveyors
- Geologists
- Engineers - M. E. & M.
- Accounting, Store persons
- Computing / IT
- Managers, U/M, Deputies,
- Miners.
- Over 700 people have expressed interest in working for Hume, more than 10% are women.
- PLUS flow on jobs.

HUMECOAL PROJECT

Women In Mining

Dr. Germaine Joplin OA

- Graduated **Sydney University** in 1930 BSc 1st Class Honours. University Medal in Geology.
- Demonstrated and studied at **Cambridge**.
- PhD in 1935.
- Returned to Sydney Uni lecturing in **igneous and metamorphic petrology.**
- **Awarded D.Sc**. in 1950 for field works.
- Undertook a BA and Diploma in her spare time.
- Was awarded a permanent research post at **ANU**.
- **Published numerous papers and 6 books**.
- In 1986 was **awarded the W.R. Browne medal for 'distinguished contributions to the Geological Sciences of Australia.**
- Made a member of the General Division of the **Order of Australia**.
- **Investigated Mount Gingenbullen in A349.**

Hume Coal – At a glimpse

- Water Licences in place to account for water use. Make Good is feasible.
- Maintains active farmland above operating mine and alongside infrastructure.
- Innovative & Environmentally Sustainable.
- Low GHG Emissions. Aim to have negligible Scope 1 and 2 post mitigation.
- All surface infrastructure to be fully rehabilitated following cessation of operations.
- The Project uses significant existing infrastructure. Moss Vale to Port rail, PKCT, B.S.S.
- Covered rail wagons. Zero Trucks for product movement.
- Exceptionally, Low Impact to Heritage.
- Satisfies NORBE. There will be no leakage.
- U/G Rejects Emplacement. No remnant surface stockpile.
- Positive Economics $200M, net economic benefit $194M.
- Establishing long term relationships with local community organisations.
- 400FTE Jobs during Construction. 300FTE jobs during operation.

Conclusions

The Project has very good **environmental** credentials.

Good **economics** with significant economic flow-on benefits.

Product that is very much in high demand – **metallurgical coal**.

Groundwater impacts are **reversible and will recover**. There is no irreversible impacts.

GWB impacts can be "**Made Good**".

The Pinefeather operation will see **safe mining operations**.

There will be **minimal surface subsidence** impacts.

Hume Coal will **deal openly and fairly with all affected landowners**.

Commissioners, I **commend this State Significant Project** to you and look forward to your decision. No pressure, but hundreds of JOBS depend on you.


HUMECOAL
PROJECT
THANK YOU