Meeting held: 21st May 2019 – 10.30am – 1.30pm

Venue: Boggabri RSL

Present:	Roberta Ryan (RR)	Independent Chair
	Sandra Spate (SS)	Minute taker
	Cr Robert Hooke (RH)	Gunnedah Shire Council (GSC)
	Cr Cameron Staines (CS)	Narrabri Shire Council (NSC)
	Brian Cole (BC)	Executive General Manager, Project
		Delivery, WHC
	Tim Muldoon (TM)	Group Manager Community Relations and
	× ,	Property, WHC
	Keith Blanch (KM)	Community Representative
	Ron Fuller (RF)	Community Representative
	Grant McIlveen (GM)	Community Representative
	Barry Thomson (BT)	Community Representative
	Andrew Raal (AR)	WHC Environmental
	Cr Cathy Redding (CR)	Mayor NSC - observer

Apologies:

ltem	Description	Action/ Responsibility
1	Present, introductions and apologies	
1.1	RR outlined her role as Independent Chair appointed by the Department of Planning. The CCC is not formally required at this point for the Vickery Extension Project as this is usually triggered as part of approval process. Notes go to members for feedback, the Chair signs off on them and then they go on public record. Cr asked if this CCC exists under current approval or whether it will stand for future approval. RR said if approval is given it will be constituted as part of that approval. Some changes were made to the committee pre-existing her role as chair but RR was asked to take over the pre-existing work for the Canyon and Vickery project. CCCs are part of government legislative requirements for mining projects and other state significant projects. They are facilitated independently. The purpose of the meeting is to provide information and get feedback. If approval is given the CCC's role is oversee consent conditions. Membership is up to Chair who seeks to broadly represent key interests. Both Councils within the project area are requested to participate. Members are asked to declare interests which are on the public record. Declarations of Interests don't exclude membership or participation and records sit with the chair.	
1.2	Members introduced themselves and noted their interest in the committee. Catherine Redding, Mayor of NSC attended as an observer.	
2	Declaration of pecuniary or other interests	
2.1	Declarations of pecuniary interests sit with the Chair. Two recent members are to provide formal declarations.	
3	Previous minutes and matters arising	
3.1	Acceptance of minutes from the October 2018 meeting was moved by GM and seconded by RF. The minutes were accepted.	

3.2	Action 7.16 August 2018. TM to respond to the question of proximity of neighbours to Maules Creek in relation to coal into hoppers. GM had asked how close the nearest neighbours (property 108/109) are.	The distance scaled off an aerial plan is approximately 5.5km.
3.3	Action 4.17 October 2018. BC to provide figures for the total number of shut down hours experienced by Maules Creek over winter. BC reported Maules Creek has advised that it does not maintain records of shutdowns as it is a dynamic procedure. Noise levels are monitored. Approval limit is 35dB. Maules Creek has advised that when noise level gets to 30dB action is taken to change operations to remain below 35dB. Closures are determined by monitored readings. Based on advice it is estimated that there are around 20 to 30 instances where operations are impacted over the winter months but these vary in duration. RH asked whether noise monitors are in a fixed position. BC replied they are to monitor impacts on neighbours and keep noise at acceptable levels. RH asked if wind directions are considered. AR indicated that it was but not under high wind conditions. GM said the closest people at Maules Creek live further away than neighbours to Vickery but we have been told Vickery neighbours won't be affected. TM said there are many influences on noise impacts including distance to site, topography, temperature effects and wind direction. RF suggests we won't know impacts till operation.	
4	Canyon and Vickery Environmental Monitoring Report	
4.1	BC reminded the CCC that since the last Environmental Impact	
7.1	Statement (EIS) the Independent Planning Commission (IPC) process has occurred. The process is around 14 weeks behind government benchmarks of 12 weeks after exhibition of the EIS RR noted the IPC was formerly the Planning Assessment Commission (PAC) which is independently convened.	
4.2	AR delivered the Canyon and Vickery Environmental Monitoring Report (attached to minutes). Canyon is to the north of the Vickery site. It is closed and rehabilitated. A void remains. The two separate sites will merge as material from Vickery covers the void at Canyon. It will then be seen as one project. Water is extracted from the void for Tarrawonga. There was one issue of spontaneous combustion on site. All carbonaceous material was removed. Some air quality monitoring had some high readings. It was concluded this was due to dust storms. There were some higher conductivity readings in water due to evaporation with drought increasing salinity. There were no complaints.	
4.3	CR asked that the link to the Environmental Monitoring Report be sent to Narrabri Council when uploaded.	WHC to send a link to the report to councils when uploaded.
4.4	KB asked why water continues to be carted to Tarrawonga after recent rains. AR and TM said they are still hauling some but this is being reviewed. GM asked if water in the void is groundwater or runoff. AR replied modelling showed a little is groundwater (around 4 megalitres year) but the majority is surface runoff. There is a separate water licence for 50 megalitres of ground water. CR asked whether increased water storage capacity in mines could capture more runoff considering the current extreme drought. This could	

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	also alleviate pumping from the river. She also asked whether Vickery	
	can capture and use run-off during rain events and high flows.	
	BC said the surface water assessment models climatic conditions	
	looking at rainfall records and series of droughts from over 100 years.	
	Whitehaven can capture some runoff but within limits.	
	TM said Whitehaven captures all the water they can except in extreme	
	events. The cleanest water is allowed to be released at approved	
	release points in accordance with water management plans for the mine.	
	AR noted a separation between clean and dirty water. All disturbed	
	areas potentially impact water quality. This water has to be captured and	
	contained. Water entering the mine pit is captured. There are banks and	
	berms to divert clean runoff into natural drainage systems.	
	CS asked how runoff from rehabilitated areas is classed.	
	AR replied it is initially dirty water but does not contain minerals from the	
	mine. It is diverted to a settling pond where generally it will be used for	
	air quality control. Water runoff the operational area is captured on site	
	and quality is measured. In high rainfall events approval normally allows	
	storage to overflow but this is determined by approval conditions.	
	Samples are taken upstream and downstream.	
	GM noted an event on April 1 with 76mm in less than two hours. Photos	
	show high flow near where there washery will be. If the dam is not built	
	big enough for such events the flow will end up in the river which is less	
	than 600m from that location.	
	AR said clean rainfall is diverted through the site into natural drainage. It	
	is in the EIS and is expected to be part of conditions of approval.	
4.5	KB asked whether the void will be only part of the dump.	
	AR said this depends on approval conditions.	
4.6	RF asked where the Vickery mine would start.	
	BC replied that the box cut is just below the viewing point hill.	
4.7	KB asked what happened to captured pigs.	
	AR said they are put down.	
4.8	KB asked what happens with facilities moved from site.	
	BC said they are being moved to Tarrawonga.	
	GM asked if Tarrawonga is being expanded.	
	BC replied the old fleet is being replaced with larger equipment which	
	will lift output up to current approved output	
4.9	KB asked about B-doubles.	
	AR said with Vickery there will be less truck movements. With the coal	
	washing on site none will go into the Gunnedah plant.	
	KB asked about the future of Braymont Rd.	
	BC said that ultimately Braymont Rd south of the mine will be excavated	
	as the mine progresses.	
	KB asked if Braymont Rd will be tarred.	
	BC replied that it will remain unsealed.	
	CR asked how Braymont Road will be policed as it is the shortest route	
	from Boggabri.	
	BC indicated that it would be similar to when Maules Creek was	
	constructed when traffic was monitored and disciplinary action was	
	taken against those using the road.	
	RF noted Braymont Road pre-existed the mine.	
	KB said people have the right to use it but it is not tarred.	
4.10	GM asked whether the last increase at Tarrawonga now allows 3 million	
	tonnes or does it need a further approval?	
	TM said it would require a further approval to lift production above 3mtpa	
	BC noted limits on the size of deposits. Rocglen is nearly workout out.	
	Tarrawonga has around 10 years left.	
	KB asked whether coal is still being carted from Rocglen.	

	BC and AR replied it is intermittent. The last production blast was last	
	week. The mine will end in June and the stockpile will be trucked for	
	three months.	
	CS asked if Rocglen will close next financial year.	
	AR said there is approximately three years of rehabilitation work.	
	GM asked whether current workers at Rocglen will be doing the rehab	
	work.	
	AR replied Whitehaven workers will undertake the earthworks.	
1 1 1	Contractors will be used for seeding and tree planting.	
4.11	GM asked whether Vickery's initial approval is due to expire soon?	
	BC said it is due to expire in September and some site work involving	
	surveying commenced and will continue.	
4.12	CR asked whether all bores are to the same depth.	
	AR said depth varies. Bores higher uphill are deeper.	
	KB said that with Canyon rehabilitation dams on properties have	
	become obsolete. They don't get water into them because of the	
	rehabilitation. Even with recent rains they didn't get much runoff.	
	GM said grasses absorb the water but it is different with bare gravel. In	
	the recent 76mm event water gushed to the river. Once there is bare	
	rock there will be nowhere to go but run off.	
5.0	Vickery Extension Project – EIS Assessment Process Update	
5.1	BC presented the update (attached to minutes. He noted the IPC report	
0.1	is on the IPC website. He outlined the background for the project	
	including the initial approval for 4.5 tonnes per year, the intention to	
	include Blue Vale as part of the extension and the later decision to	
	excise Blue Vale from the application.	
	Given the undesirability of trucking coal to Gunnedah, Whitehaven	
	elected to include a CHPP on site and a rail option. The Environmental	
	Impact Statement (EIS) was submitted in August 2018.	
	With changes to the assessment process this was the first to go through	
	the new process. Previously draft conditions went to PAC for review	
	which after public meetings and refinements made a decision on the	
	development application The new process injects the IPC into the	
	process earlier to indicate to the Department of Planning where they	
	should focus.	
	After submission of the EIS there was a 6 week exhibition period. A	
	Department of Planning review provided feedback to the IPC in October.	
	As public meetings held in Boggabri and Gunnedah were deferred till	
	February the submission period was extended. Submissions on the EIS	
	whilst on exhibition included some 287 in favour, 179 objections and 9	
	comments.	
	Submissions to the IPC included some 367 in support of the project, 37	
	objecting and 8 comments.	
	BC and consultants were involved in two briefings to the IPC answering	
	questions, the second briefing being held in February. There were 14	
	points of focus. Questions included how baseline data was obtained for	
	surface water quality; groundwater; storage of mine water; sediment	
	dams design; flooding; air quality; water requirements and water	
	management; worst case; dust; noise and blasting; rail spur; timing; the	
	coal processing plant; and economic assessment.	
	There were questions about whether Vickery Coal is an independent	
	entity from Whitehaven. Vickery and other mines come under the	
	Whitehaven banner.	
	BC expects the recent restructure of the Department of Planning	
	mayextend the assessment period. Following a whole of government	
	assessment Planning will issue a report recommending approval or not	
	and a draft set of conditions for IPC consideration. The IPC will then	
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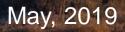
5.2	 make a decision on whether to approve the project of not and the conditions that would apply if approved. Whitehaven is commissioning design work on the coal preparation and processing plant and the mine infrastructure. Surveys and geotech work and some earthworks is also going ahead under existing approval. Discussions have taken place around works to improve the grounds of Kurrumbede. GM and CR questioned why Blue Vale is referred to as being excised from the scope of the proposed development when it was not part of the 4.5m tonne pit approval. 	
	BC noted a review of total resources at Vickery by mining consultants indicated that there was some 6 to 7mt of coal that could be mined by reopening Bluevale pit. Studies showed conclusively that this could be accomplished without impacted on the Namoi River, but in response to some community concerns Whitehaven elected to not proceed with reopening Bluevale pit. GM raised the issue of whether it could be reopened in the future. BC responded that if one considers the layout of the site, it would be impractical.	
5.3	RF asked whether points of discussion particularly around groundwater were clarified at the second briefing. BC replied the second briefing was more informed as the IPC Commissioners had had chance to look at the EIS and had heard from public hearings.	
5.4	GM asked whether the 14 points of discussion aligned with what locals have been saying. BC said a number of areas were covered, sometimes quite technical which were handled by experts e.g. how a particular modelling exercise occurred. The groundwater consultant (Hydrosimulations) was involved in the briefing and was able to respond to questions from the IPC regarding groundwater. The 14 points not by the IPC in its report broadly aligned to the EIS and therefore the IPC directed Department of Planning to broadly review the EIS in the whole of government process and take into account climate change impacts which is also covered in the EIS.	
5.5	GM asked how Whitehaven can say they have enough licenced water license to meet requirements for Vickery if they have to buy water from Maules Creek and move water from zone 4 to zone 5. TM indicated that the water recently purchased was Zone 4 and Zone 5 to cover the current situation. It would be extracted from Zone 4 not Zone 5.	WHC (TM) to provide more information on transfer of water between zones.
5.6	GM asked if Boggabri is deemed too far for dust monitoring why a air quality monitor located at Kitchener Park, Gunnedah? He can see why people in Boggabri find it hard when they have consistently asked for dust monitoring a Boggabri. AR replied the monitoring station is managed by government (EPA) and is part of a regional network.	RR to draft a letter to the EPA on behalf of the CCC requesting air monitoring at Boggabri.
	GM asked why Whitehaven can't install a dust monitor. TM indicated that the community had indicated that it wanted the monitoring to be independent of mining companies and therefore the network was managed by the EPA. CS noted Council has pushed hard for years for a remote mobile independent monitor. Letters have been sent to Planning. It has to be independent. If Whitehaven funded and managed a monitor people	

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	would doubt results. Narrabri Council and the CCCs have been strong	
	advocates but pleas have fallen on deaf ears.	
	KB asked how dust from the various locations and sources could be	
	distinguished.	
	RF noted there is a monitor on the Services Club to monitor dust from	
	trains.	
	BC suggested the monitor on the hill above Canyon would likely be used	
	to monitor Vickery.	
	AR noted there are real time monitors located at the mines and dust	
	deposition buckets.	
	CS asked that a letter from the CCC be sent to the Department asking	
	for an independent dust monitor at Boggabri. This was supported by the	
	community members on the committee.	
	CR suggested a monitor is needed before Vickery is mined to establish	
	baseline data.	
	BC noted the establishment of an environmental trust for the community	
	of \$100,000 from Maules Creek, Tarrawonga and Boggabri and	
	suggested a dustwatch monitor which would be part of a community	
	network could be a suitable initiative for the Trust	
5.7	RF asked whether the bottom of the pit at 36m at Vickery will be lower	
	than the river level.	
	BC replied the pit will be lower than the river.	
	RF has worked in wet pits. He thinks Vickery will have to pump	
	constantly as water in the water table will enter the pit. BC indicated that	
	the groundwater assessment did not indicate this.	
5.8	GM noted neighbours are awaiting more information requested about	
	the western side of the rail spur. He asked why some neighbours had	
	been consulted while closer ones not.	
	BC indicated that residents are being progressively talked to.	
5.9	TM asked who makes the final determination on approval.	
	BC replied it is the IPC.	
5.10	RF is worried about the impact of coal production in the Galilee Basin on	
	production here.	
	BC suggested that won't affect production here as Gunnedah Basin coal	
	is generally e higher quality.	
6	General Business	
6.1	GM asked about correspondence regarding additional community	
	representatives on the CCC.	
	RR will follow this up, noting that no membership matters will be settled	
	until the next stage in the Vickery Extension project is clear.	
6.2	CR asked whether existing approval expires soon.	
	BC and TM replied it expires in September but current work is being	
	undertaken under the current approval. This includes survey for future	
	road works and for water infrastructure, engineering in the form of	
	geotechnical investigations on site, establishment of site offices and	
	compounds and some access road works.	
6.3	RH reported on a skill shortage throughout the area. Gunnedah Shire	
	Council has been supporting efforts revitalise Gunnedah TAFE. State	
	government money has gone into restructuring TAFE with	
	commencement of construction engineering, plant operators and white	
	card courses. TAFE is trying to re-engage with big employers in the	
	community and he encourages Whitehaven to get an appetite to re-	
	engage with TAFE. If there is demand for a particular course TAFE will	
	put it on. He urges Whitehaven to have conversation with TAFE and	
	save people having to go to the Hunter. There are also pre-	
	apprenticeship courses.	

CR said Narrabri Council is engaged in similar activities. With a country university campus opening in June. Council is working in the TAFE area. TM noted Whitehaven have commenced talking to TAFE. GM raised the desire of the Boggabri Progress Association to see if land owned by Whitehaven to the north can be developed as industrial land. RF agrees both shires should encourage Whitehaven to develop industrial land. CR suggested it would depend on zoning. TM said Council would need to do a feasibility study. If feasible Whitehaven may be able to assist. RR suggested interested parties should talk with Whitehaven. Date and agenda for next meeting TBA depending on the approval process. Whitehaven will communicate	
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any developments to the CCC.	
These minutes have been endorsed by the meeting Chair	
Signed: Date: 11	6.2019
S	Signed: Date: 11.

Whitehaven Coal Limited

VICKERY EXTENSION PROJECT | VICKERY CCC MEETING 21 MAY, 2019





Agenda

ITEMS

- 1. Present, introductions and apologies
- 2. Declaration of pecuniary or other interests
- 3. Previous minutes
- 4. Canyon and Vickery Environmental Monitoring Report
- 5. Vickery Extension Project EIS Assessment Process Update
- 6. General business
- 7. Date and agenda for next meeting



ENVIRONMENTAL MONITORING

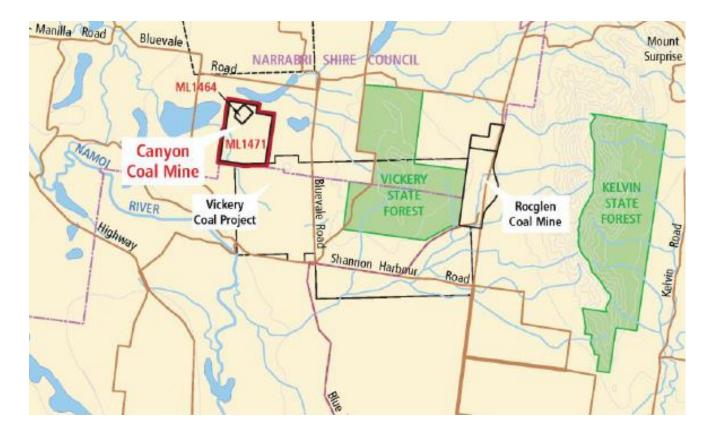
VICKERY PROJECT CCC MEETING - MAY 2019

BOGGABRI, AUSTRALIA MAY 2019



VICKERY AND CANYON MINES

MINING AT VICKERY CEASED IN THE 1990'S AND IN 2009 AT CANYON.





CANYON COAL MINE



CANYON MINE CLOSURE

MINING CEASED IN 2009 AND THE SITE HAS UNDERGONE SIGNIFICANT REHABILITATION. MAJORITY OF INFRASTRUCTURE HAS BEEN REMOVED FROM SITE

- Activities on site controlled by Mine Closure Operations Plan 2015-22, DA 8-1-2005, and ML's 1464 and 1471. Canyon CCC has been combined into the Vickery CCC.
- Report covers key environmental monitoring and events that have occurred since the last CCC. Which include:
 - Site environmental issues and activities (SponCom, Void water extraction, Independent Environmental Audit)
 - Rehabilitation
 - Monitoring (Dust, surface and groundwater)
 - Specialist studies
 - Community complaints



CANYON VOID WATER EXTRACTION

Water has been extracted from the canyon void for use at Rocglen and Tarrawonga mines, which started in December 2018.

Current void Volume is ±80ML

Weekly use ~3.5ml a day.

Due to recent rain only Tarrawonga is still utilizing water from the pit void.





INDEPENDENT ENVIRONMENTAL AUDIT

Canyon three yearly independent audit was conducted in February 2019. There were a few non-compliances which were all low or administrative. No medium or high risk non-compliances.

Report and submission has been sent to the Department of Planning, awaiting confirmation and finalisation prior to making the document public.

One finding relative to CCC is requirement to provide copies of reports.

DA 8-1-2005 (10). Within 1 month of the approval of any management plan/strategy or monitoring program required under this consent (or any subsequent revision of these management plans/strategies or monitoring programs), the completion of the independent audits required under this consent (see conditions 30 of Schedule 3 and Condition 6 of Schedule 5), or the completion of the AEMR (see condition 5 of schedule 5), the Applicant shall: (a) provide a copy of the approved document/s to NSC, GSC, relevant agencies and the CCC; and (b) ensure that a copy of the relevant documents is made publicly available at NSC and GSC offices, to the satisfaction of the Secretary.

All documentations are placed on Whitehaven Coal web page. Discussion with GSC is that they prefer documents link be emailed when the documentation is available for publication.

http://www.whitehavencoal.com.au/

http://www.whitehavencoal.com.au/sustainability/environmental-management/canyon-mine/



REHABILITATION & INDEPENDENT ENVIRONMENTAL AUDIT

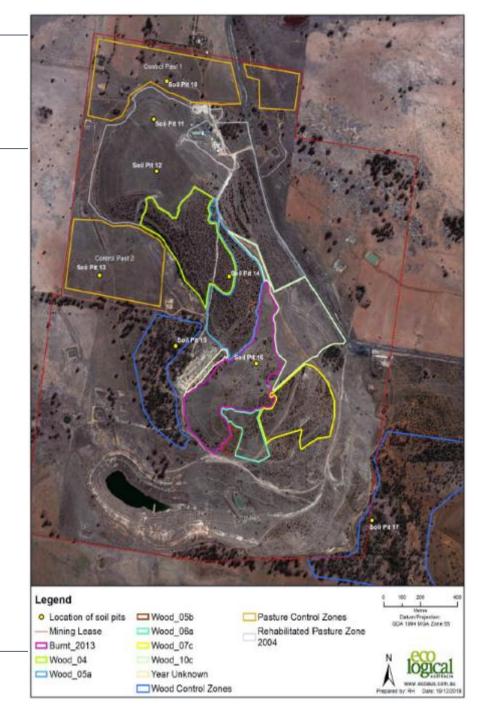
REHABILITATION ACTIVITIES

Two motion sensor camera 'traps were installed' to identify feral animal numbers and species on site, and general fauna species numbers for potential culling programs.

Weed spraying was undertaken in December 2017 and April 2018 for African Boxthorn and Prickly Pear. April spraying also include fire breaks.

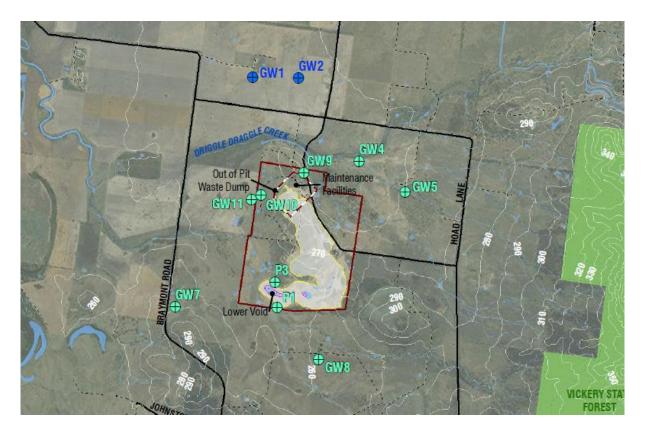
A total of 23 pigs were trapped onsite.

Detailed rehabilitation monitoring results are provided in Canyon Annual Review which is available to view online.



CANYON MINE LAYOUT

THE REMNANTS OF THE MINE INCLUDE AN UPPER AND LOWER VOID.





MONITORING

Surface Water:

There were no wet weather discharged during the period.

76mm of rainfall was recorded on the 30th March, dam inspections revealed that none of the dams had overflown, void had water volume increased of 3ML.

Air Quality:

Depositional dust levels were high especially for D12 which was due to regional dust storms. Similar high dust reading were also recorded for all monitoring sites across the region.

Site	Property Name	Annual Average Guideline	Annual Mean Total Insoluble Solids (g/m2/month)
D1	Whitehaven	4	2.27
D2	Merton	4	2.75
D12	Whitehaven	4	5.87
D13b	Womboola	4	3.27



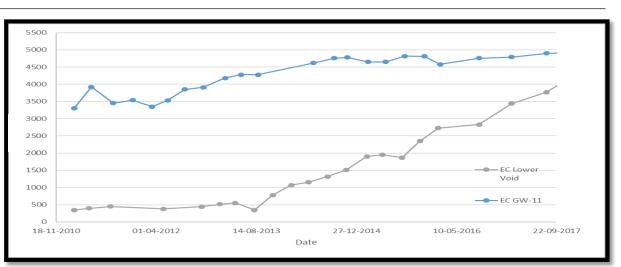
STUDIES COMPLETED

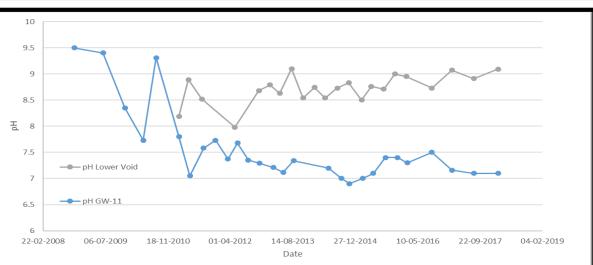
Void Water Quality Assessment

Report Conclusion

The main focus of the analysis was to assess whether the data reviewed provided any clarity on the reasons why the EC and pH in the void were increasing. It appears that the EC and pH rise may be due to separate mechanisms. Evaporation appears to be the primary mechanism for this increase in EC in the lower void.

Furthermore, it is considered unlikely that groundwater inflow is the primary mechanism causing a rise in pH. It is possible that erosion of the void and upper catchment could be contributing to the increase in pH. This should be investigated further through increased tested for both the upper and lower voids.





COMPLAINTS

FY18

No complaints received since last CCC





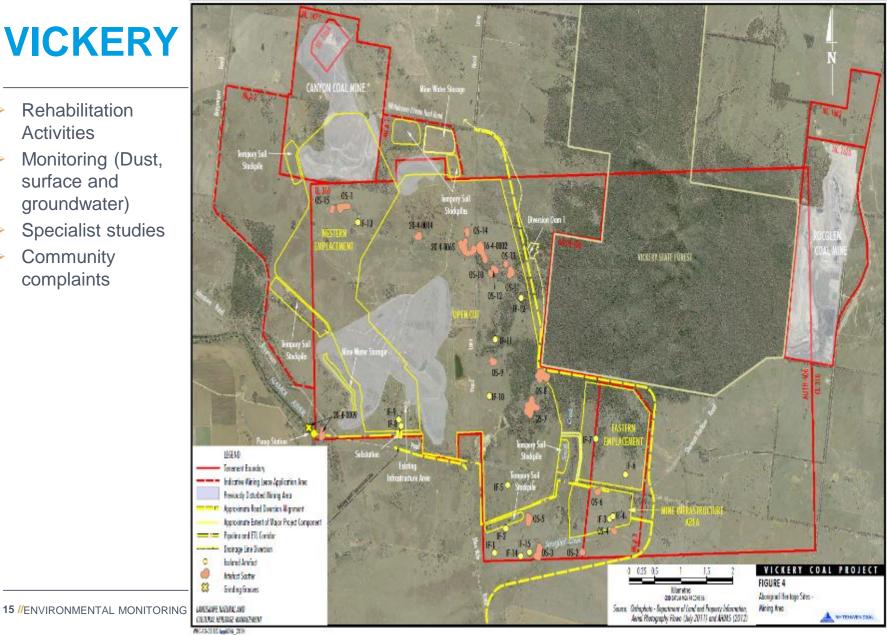
VICKERY COAL PROJECT



VICKERY

VICKERY

- Rehabilitation >Activities
- Monitoring (Dust, \succ surface and groundwater)
- Specialist studies
- \succ Community complaints



REHABILITATION & INDEPENDENT ENVIRONMENTAL AUDIT

REHABILITATION ACTIVITIES

Feral animal management is done in conjunction with Canyon (Pig Trapping)

Extensive biodiversity works carried out on Willeroi, including weed spraying, feral animal management, ecological burning.

Two monitoring cameras were installed on the CCM during November 2018, with results thus far indicating that Macropods are in high abundance, foxes are medium to scarce abundance, cats, goats, rabbits and deer are all scarce in abundance, and pigs and hare have a scarce to high abundance.

Extensive biodiversity works carried out on Willeroi, including weed spraying, feral animal management, ecological burning

Detailed rehabilitation monitoring results are provided in Canyon Annual Review which is available to view online.





MONITORING

Depositional Dust

FY 2018-2019 Depositional Dust									
	Guideline	DG1	DG2	DG3	V1	V2	V3	V4	V5
Min		1.80	0.37	1.30	0.53	0.50	1.30	0.85	0.89
Max		7.30	4.00	2.30	4.00	2.20	30.60	7.90	5.70
Mean	4	3.66	2.43	1.80	1.86	1.26	10.37	3.08	2.77

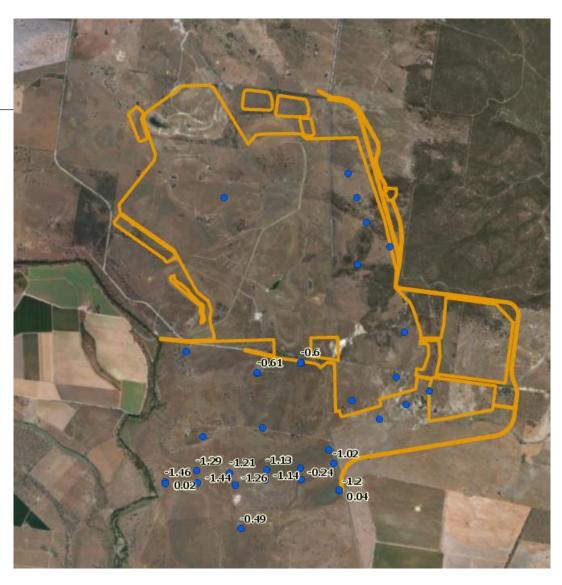
A number of high dust reading due to regional dust storms and dry weather





GROUNDWATER

Groundwater levels up to end of December 2019 had a mean drop of -0.86m





COMPLAINTS

FY18

No complaints were received during the 2018 financial year.





THANK YOU www.whitehavencoal.com.au



sr 17 Narrabri 35

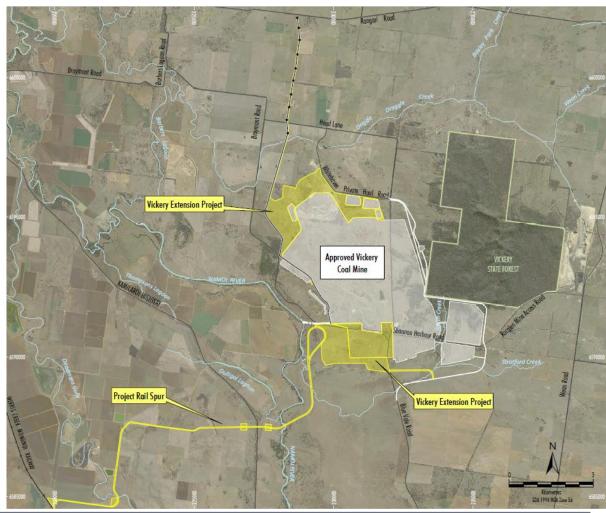
Background - Vickery Extension Project



- The Vickery Coal Mine is already approved (2014) as a 4.5Mtpa open cut coal mining operation, located approximately 15 km south east of Boggabri.
- The Project site has previously been extensively mined and there is no high value agricultural land on the site
- Whitehaven is seeking approval for increased average run rate of 7.2Mtpa over 25 years.
- The Project involves the construction and operation of an on-site CHPP, train load-out facility, rail loop and rail spur.
- Access agreements are in place with private landholders along rail spur.
- The project will deliver additional jobs and business for the Gunnedah Shire.
- The Gunnedah Basin produces some of the highest quality coal in the world.



Background - Vickery Extension Project



The scale of the Vickery Extension Project footprint is marginally larger than the Approved Mine footprint.

Coal resource increased to include Vickery South – from approx. 135Mt to 179Mt.

Mine run rate increases from 4.5Mtpa to average of 7.2Mtpa.

Scope includes rail spur and on site coal processing which provides a superior environmental outcome.



22 // VICKERY EXTENSION PROJECT - BRIEFING

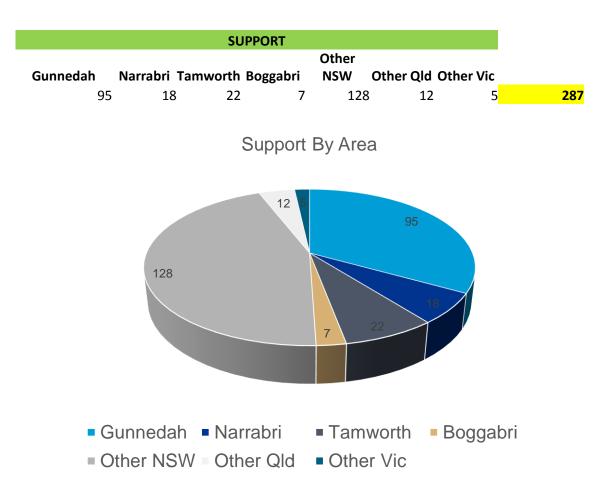
Assessment Process

Heferral Received: 23/10/2018



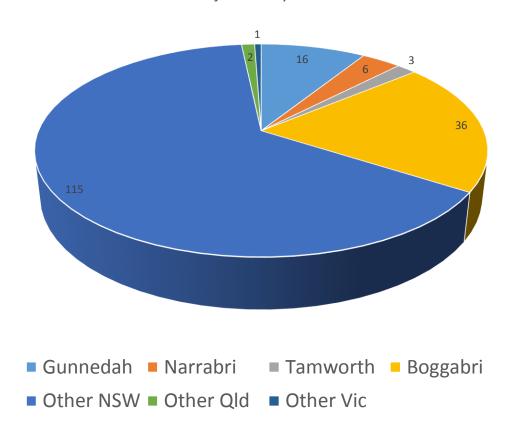


Submissions to DoPE





Submissions to DoPE

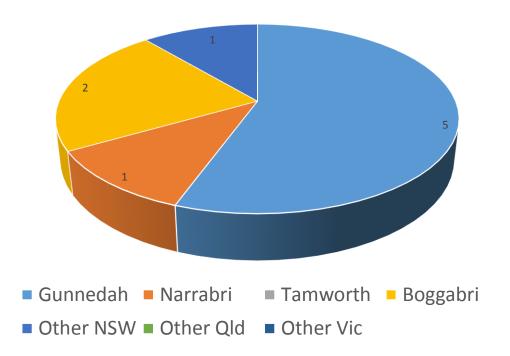


Objection By Area



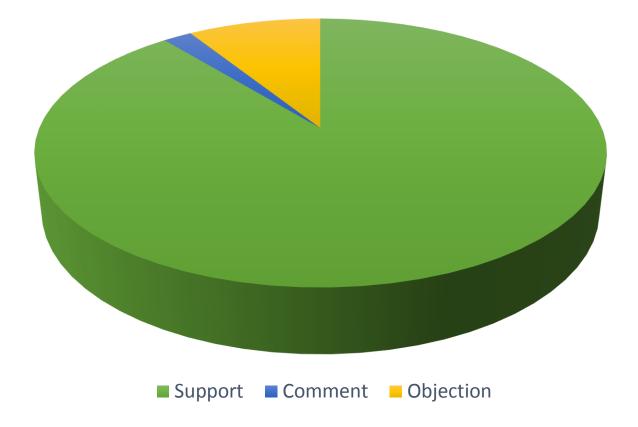
Submissions to DoPE

Comments By Area





Public Submissions to the IPC





Second IPC Briefing 25 February, 2019

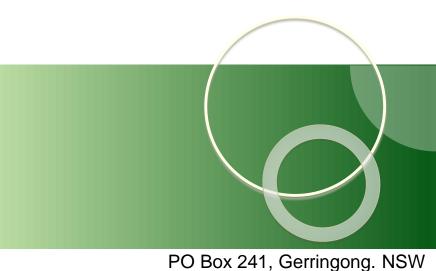
Response to Queries from IPC





Vickery Extension Project Groundwater Assessment

IPC Briefing - 25 February 2019



www.HydroSimulations.com

IPC Questions



What is the stratigraphy used in the groundwater model? What data is it based on?

- The 14 model layers represent the lithologies within the model domain
- Lithologies within the model domain have been identified based on:
 - Published regional data (e.g. government geological mapping)
 - Government hydrogeological studies and models (e.g. Upper Namoi Groundwater Flow Model) – alluvium thickness determined by drilling and seismic refraction surveys in late 1960s
 - Review of regional bore logs
 - Review of local geological and groundwater monitoring data (e.g. historical Vickery mine and Canyon, Rocglen, Tarrawonga Coal Mines)
 - Site specific hydrogeological investigations (e.g. alluvial definition drilling; TEM)
 - Site geological model from exploration drilling

1 Alluvium or Regolith 2 Alluvium or Overburden 3 Overburden Braymont Seam to 4 Jeralong Seam 5 Interburden Merriown Seam to 6 Velyama Seam 7 Interburden 8 Nagero Upper Seam 9 Interburden Northam Seam to 10 Templemore Seam, Tralee Seam to Stratford Seam 11 Interburden Bluevale Seam to Cranleigh 12 Seam (Whitehaven Seam) 13 Underburden 14 Volcanics WHITEHAVEN COAL

LITHOLOGY

LAYER

What is the sensitivity of the results to potential climate change impacts both during and post-mining?

- The Groundwater and Surface Water Assessments have considered potential changes in rainfall and evaporation to account for climate change predictions over the life of mining and post-mining.
- Post-mining:
 - The sensitivity of the final void pit lake equilibrium level has been tested by Advisian (2018) for various IPCC climate change scenarios.
- During mining:
 - NarClim, CCiA and CSIRO modelling predictions have been reviewed for Project mining and post-mining periods, for each of four seasons.
 - The pit inflow predicted by the groundwater model was found to be insensitive to recharge variation predicted by CCiA climate change models.
 - The site water balance predicts water supply demands could be met (within Whitehaven's licensed allocations) and that the water management system would operate satisfactorily to contain rainfall runoff.
- Groundwater and Surface Water Assessment have been peer reviewed (for the EIS and by / on behalf of DPE)





Independent Planning Commission Briefing

Chris Thomas Senior Principal Practice Lead – Water Resources



www.advisian.com



IPC Questions





If approved, what steps would Whitehaven take to obtain adequate baseline surface water quality data before commissioning of the plant,?

- There is extensive baseline data available for the Namoi River, however, the collection of recent monitoring data from local streams inhibited by intermittent flow and drought conditions
- As there is nil discharge of mine water there is limited potential for changes in downstream water quality – therefore limitations on local stream baseline data due to drought conditions not an assessment issue
- Baseline surface water quality data was drawn from:
 - NSW Department of Industry (Water) database
 - Monitoring of nearby streams conducted by Whitehaven
 - Monitoring of mine water dams, sediment dams and final void water bodies for other mining operations in the region
 - Data compiled previously for the original Vickery Coal Mine EIS
- Proposed Baseline Surface Water Monitoring leading up to commissioning:
 - Sediment dams
 - Controlled discharge from sediment dams
 - Ephemeral streams
- Monitoring will continue throughout the Project life





Reviewers have suggested that the available storage for mine water needs to be increased to prevent the risk of an inadvertent damaging discharge during prolonged inclement weather. Could Whitehaven comment on the need or otherwise for this?

- Sediment Dam design is inherently over-designed to account for maximum catchment area over the Project life and reuse of water on-site
- Mine designed to be a NIL Discharge Mine

→ No mine water or coal contact water will be discharged from the site

- Sediment dams will collect sediment-laden runoff from active waste rock emplacement and rehabilitation areas.....
 - → but NOT mine or coal contact water
- Sediment dams conceptually designed according to standard practice
 - → Based on guidelines in "the Blue Book" (Landcom, 2004)
- Frequency of discharge will actually be less than prescribed by the Blue Book, because:
 - (i) Sediment dams would be over designed and constructed at the start of the Project for their maximum reporting catchment, which would increase over the Project life
 - (ii) Water captured in sediment dams would be preferentially used to meet on-site water demands which would reduce the likelihood of overflow





Vickery Extension Project Flood Assessment

IPC Briefing - 25 February 2019





IPC Questions



What is the sensitivity of the predicted incremental flood levels (above or below that would occur without the rail spur) at the CHPP and junction with the North-west main line to changes in the flood plain hydraulics parameters?

- Project CHPP is located outside the extent of the event that is three times the Namoi River 1 in 100 year design flood event
- North-west main line is not overtopped at the proposed junction with the Project rail spur for this event
- Flood modelling showed peak flood levels not overly sensitive to changes in floodplain roughness
- No chance that changes in floodplain roughness would impact on the flood immunity of the Project CHPP or the North West main line

Vickery Extension Project

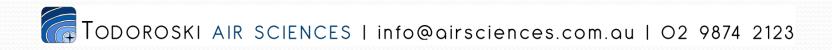
Air Quality

25 February 2019



IPC Questions

The following provides a brief summary of the detailed response to questions raised by the IPC.



Modelling assumptions & outputs, specifically comparing the Approved mine with the Extension Project, including mine extraction, load & haul operations, CHPP, transport, overburden handling, rehabilitation & inputs from other Whitehaven mines

- For both the Project and the Approved Mine annual emissions were estimated based on peak years of waste rock and ROM coal movement, exposed areas and proximity of operations to sensitive receivers
- The key difference in emissions inventories is that the Project adopts a best practice control level for haul roads of 90% whereas the Approved Mine assumed 75%
 - + Haul roads are the most significant contributor to annual emissions
 - Since the Air Quality Assessment for the Approved Mine (2012) the EPA implemented its Dust-Stop Program, which required all NSW mining operations to demonstrate at least 80% control on haul roads
 - + Numerous mines (including Whitehaven mines) demonstrated 90% control or greater
 - + Accordingly 90% control was adopted for the Project
- + Further detail will be provided in the written response

Details confirming the scenarios modelled include worst case. Details of the definition of worst case

- + 'Worst case' refers to a situation where the maximum likely dust level would arise
- + Three potential worst case scenarios assessed to represent:
 - The maximum amount of material (waste rock and ROM coal) is moved, and hence the maximum amount of dust is generated
 - The exposed areas are large and hence wind erosion may be greater (note wind erosion is a small source)
 - + The activity is nearest receptors, and thus has most scope for impacts
- As the mine moves relative to several groups of receptors, several worst case scenarios are used to ensure maximum impacts at any receptor are assessed

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Consideration of the establishment of an air quality monitoring station at Boggabri

- + An extensive regional monitoring network is already in place
- + Data from the OEH network monitors at Narrabri, Gunnedah, Tamworth, Maules Creek, Breeza and Wil-gai (i.e. Project site) are reported weekly on the EPA website
- In its latest monitoring report, OEH says dust levels in the Namoi Region were "Very good", "Good" and "Fair" (i.e. below air quality criteria) 97% of the time from May 2017 to July 2018, and attributes levels above criteria to dust storms and winter wood smoke, in common with almost all country towns
- The OEH Network is in addition to mine-specific monitors designed to demonstrate compliance with air quality limits
- Boggabri is too distant from the Project to register any measurable level of dust due to the mine
- Dust would be measured at an air quality monitoring station established closer to the mine, where there is potential to detect the contributed dust from the mine, and thus confirm compliance at that location and further afield

VICKERY EXTENSION PROJECT NOISE & BLASTING ASSESSMENT

25 February 2019



IPC Questions



Can the proponent demonstrate that their approach gives valid results for similar scenarios at their other local mine sites (i.e. show that their modelling works)? What is the sensitivity of the predictions to changes in noise assumptions

- The modelling and assessment methodology under the NSW *Noise Policy for Industry* is inherently conservative
- Modelling was conducted using the Environmental Noise Model (ENM) which is a regulatory approved model
- Key inputs to the modelling provide certainty for results:
 - Equipment sound power levels (based on measurements of manufacturer specifications)
 - Mine topography and source locations (based on 3D mine plans)
 - Surrounding topography (based on government topographic data and/or project surveys)
 - Meteorology (based on data from the on-site meteorological station)
- Wilkinson Murray has conducted noise validation studies for ENM which found monitoring was within 1-2 dB of modelled levels
- Maximum noise predictions are for the most adverse meteorological conditions analysis indicates noise levels would be lower than maximum for >90% of the time



Details confirming the scenarios modelled include worst case. Details of the definition of worst case

- Three operational scenarios were modelled to represent the maximum potential for noise impacts
- The scenarios account for:
 - Proximity of operations to receivers (e.g. Year 3 for receivers to the south-west)
 - Maximum elevation of mine topography (elevation increases noise propagation due to decreased likelihood of intervening topography)
 - Maximum fleet numbers
- Noise results (for all Years modelled) consider adverse meteorological conditions (e.g. inversions and source to receiver winds)



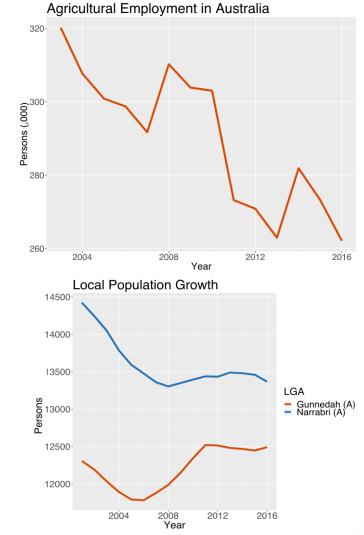


Vickery Economic Assessment

25 February 2019

Agriculture

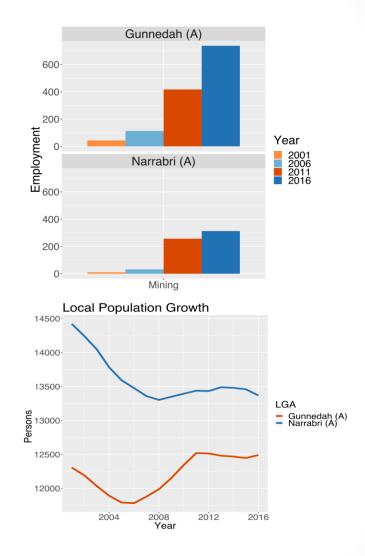
- EIS submissions raised concerns in regard to competition for labour – particularly from agricultural sectors
- In rural Australia agriculture is the primary source of employment
- Over the last twelve years agricultural employment has fallen by almost 19%
- Regional Australia is not immune from other downward employment trends in manufacturing and retail trade
- This has and will see declines in rural population growth



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Mining

- In Gunnedah and Narrabri coincident increases in mining employment appear to have curtailed population decline (or increased population)
- Sustained / sustainable increases in LGA population can have associated economic and socio-economic benefits
 - Gunnedah has strong employment growth in the service sector
 - Narrabri has seen a recovery in its service sector



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IPC Questions



Details of the assessment of all rail options & particularly the northern loop, providing assumptions and specific reasons for conclusions

- Whitehaven considered a number of options for the rail spur, in particular the:
 - Project rail spur presented in the EIS
 - Northern rail spur
- In assessing the options the factors considered included:
 - Land ownership
 - Construction (comparative lengths, watercourse and road crossings, upgrades to existing infrastructure)
 - Logistics and congestion (capacity of the existing Maules Creek-Boggabri Spur, cycle times, requirement for new passing loops)
 - Environmental (e.g. floodplain management, Boggabri offsets, biodiversity, Aboriginal heritage)
 - Relative costs (capital, operational, above/below rail)
- An economic analysis of the two options indicated that the rail spur options proposed delivered in excess of \$150m of value when compared with the northern option



Specific timing of rail commissioning

- Specific timing is dependent on Project approval
- Expect construction period to first railing of approximately twelve months
- Full commissioning (e.g. destressing, signaling, defect rectification) approximately another six months

Specific timing of CHPP commissioning.

- Specific timing is dependent on Project approval
- A construction period of approximately twelve months
- It assumes that long lead time equipment is ordered in advance
- Commissioning of the plant usually takes six to nine months



Can the CHPP be bunded to reduce noise impacts on local landowners (e.g. extension of the western emplacement to surround the CHPP).

- There is insufficient space between the extent of mining tenure and the pit to construct a bund of sufficient size to be effective
- Noise impacts under adverse weather conditions at the closest residences to the south west (apart from 127c) are 'negligible' (under VLAMP definition) or compliant with the NSW Noise Policy for Industry noise limits
- An acoustic treatment package has been developed for 127c and has been shared with the owners
- Whitehaven will continue to consult with the owners of property 127





VICKERY EXTENSION REPORT IDENTIFIES KEY ISSUES REQUIRING "DETAILED CONSIDERATION"

30 April 2019

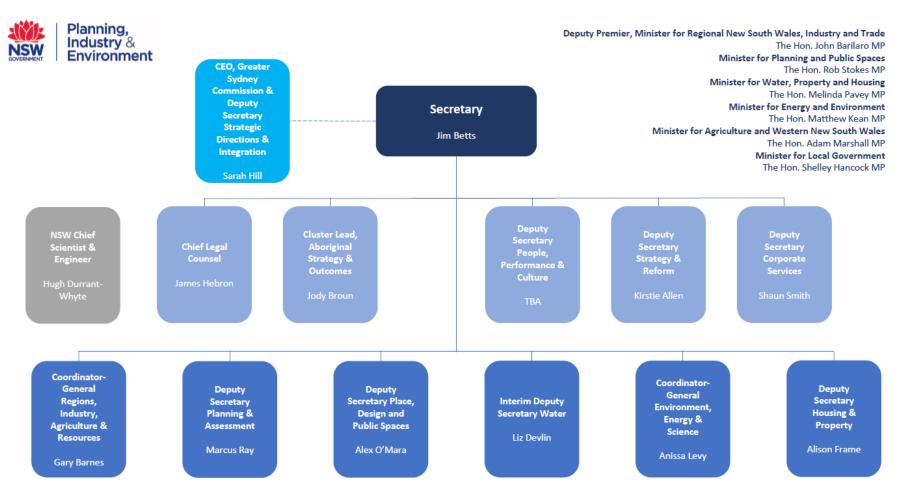
"The Commission has identified a number of issues associated with these 14 aspects of the Project, all of which the Commission considers are key issues requiring detailed consideration by the Department in its evaluation of the merits of the Project," it added.

- strategic context and Project justification;
- groundwater;
- surface water and flooding;
- water balance;
- noise and blasting;
- air quality;
- Project infrastructure area;
- Biodiversity;
- rehabilitation, final void and final landform;
- heritage;
- social and economics;
- visual amenity;
- traffic and transport; and
- the public interest."

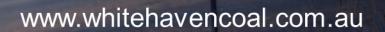
The Project now goes back to the Department for a full whole-of-government assessment.



Whole of Government Assessment









SR 17 Narrabri 35

Meeting held: 2	28 th October 2019 – 11.00am – 1.00pm	
Venue: V	Whitehaven offices, Gunnedah	
S C B B C A K C C A C A C A	Roberta Ryan (RR) Stella Cimarosti (SC) Cr Robert Hooke (RH) Barry Thompson (BT) Brian Cole (BC) Darren Swain (DS) Andrew Johns (AJ) Keith Blanch (KB) Ron Fuller (RF) Grant McIlveen (GM) Alexandra Carynny (AC) Jorge Moraga (JM)	Independent Chair Minute taker Gunnedah Shire Council (GSC) Narrabri Shire Council (NSC) Executive General Manager, Project Delivery, WHC Community Relations Manager, WHC Gunnedah Shire Council (GSC) -staff Community Representative Community Representative Community Representative WHC Environmental WHC

Apologies: Cr Cameron Staines – NSC

ltem	Description	Action/ Responsibility
1	Present, introductions and apologies	
1.1	Meeting chair welcomed the group and members introduced themselves.	
2	Declaration of pecuniary or other interests	
2.1	No new declarations made.	
3	Previous minutes and matters arising	
3.1	Acceptance of minutes from the May 2019 meeting was moved by RH and seconded by GM. The minutes were accepted.	
4	Canyon and Vickery Environmental Monitoring Report Presentation attached to minutes.	
4.1	Questions arising from presentation RF – does Canyon still have water in it? AC - The water level here is around the same as detailed in the last report that was provided. No significant changes have been recorded. RF – Are there any interactions with the Red Hill area? AC - The void itself is acting like a groundwater sink. RF – Noted that there has been some filling of water trucks in the area east of the haul road. AC - ground water data shows that groundwater measured at GW-9 is moving towards that void. AC – The water storage to the east of the haul road is fed from Driggle Draggle Creek and contains surface water after rainfall.	
4.2	GM requested further information about the winged peppercress. AC noted that as soon as the plan regarding the peppercress is approved it can be provided this to the group.	AC to provide plan when available.
5.0	Vickery Extension Project – EIS Assessment Process Update	
5.1	BC key points: - Surface water, ground water, flooding and economics	

	assessments which were peer reviewed by WHC were also peer	
	reviewed by DPIE peer reviewers.	
	 DPI&E is now in the process of conducting a Whole of 	
	Government (WoG) review after which it will issue a report.	
	- WHC has prepared a Response to Submissions (RTS) which	
	has been submitted to DPIE.	
	- In preparing its RTS, WHC conducted some additional modelling	
	to address issues raised by the IPC.	
	- DPI&E will issue its WoG report which will go to the IPC.	
	Following receipt of the report the IPC will schedule another	
	public hearing which could occur prior to Christmas.	
	- The report from DPI&E is expected to make a statement about	
	whether the project should be approved or not and if so what	
	conditions of approval are being recommended.	
	- IPC will run the public hearing, review the conditions and make a	
	decision.	
	 At this stage it is anticipated that a decision will be made by 	
	early next year.	
	 Minor Amendments to the project have been submitted. The 	
	mine footprint has been reduced slightly with the result that the	
	amount of tonnes to be mined has reduced.	
	 Key issues raised in the consultation include: 	
	 Submissions overwhelmingly supported the project in 	
	terms of economic benefits for the region. There were	
	also some views on adverse socio-economic impacts.	
	- No new issues came out of the submissions received and	
	responses provided.	
	- Predicted groundwater impacts as a result of the approved mine	
	were very low. Extending the mine footprint marginally to the	
	south would not have been expected to have much of an impact	
	and this was what was found from the modelling. As	
	groundwater is a topical issue questions were raised around the	
	way modelling was carried out. Predictions demonstrated minor	
	changes to the impact.	
	 Since the last meeting we foreshadowed we would be doing 	
	some early work as part of the approved Vickery Coal Project.	
	WHC has undertaken surveying, geotechnical engineering,	
	access road maintenance and installation of compounds.	
	- It is anticipated that construction could start at the end of 2020	
	or early 2021. In the meantime design works are being	
	progressed.	
5.2	General questions raised	
	GM – What percentage of the 345 supportive comments were from	
	Whitehaven employees?	
	BC – Don't know for sure but would estimate maybe around 10 to 20%.	
	This information could be ascertained from the submissions listed on the	
	DPIE website and the IPC website.	
	GM – What size will the catchment dams be?	
	BC – This is being determined at the moment in the design process.	
	GM - Can we get the figures when it's done?	
	BC – Yes, but this won't be decided until the final design has been	
	completed.	
	GM – How deep will the piles go into the ground?	
	BC – They will generally have a pile cap. Depending on the detailed	
	design they will either have piles or a pad footing sitting close to the	
	ground surface.	
	GM – So they won't go into the ground?	

	BC – Yes they will.	
	GM – How deep into the ground will they go?	
	BC – It will depend on the ground conditions at each location.	
	GM – How deep are they at Boggabri Maules Creek crossing?	
	BC – From memory around 12 – 15 metres	
	GM– On bedrock?	
	BC – I don't think so.	
	GM – How often would Maules Creek shut down at night due to	
	inversions?	
	DS – Pretty regularly during winter. They would shut sections of the	
	operations or sometimes the whole mine. Sometimes they will change to	
	using different equipment. It depends on the circumstances.	
	GM – How are the trials with autonomous trucks at Maules Creek going?	
	BC – Slowly. At the moment it involves intermitted work with one digger	
	and one truck. Looking to start a 5-6 truck trial early next year. We will	
	see how that goes and progressively extend it. This is the first	
	application of autonomous hauling in a multi seam coal mine that I am	
	application of autonomous nauling in a multi seam coal mine that I am aware of.	
	RF – Where are you going to put the CHPP?	
	BC – Just south of Braymont Road. RF – The sediment dams would still be there?	
	GM – They will be further to the south than that.	
	BC – They have only just started the preliminary work for this.	
5.3	Questions regarding VEP VPA	
	BT – In regards to the VPA, why after discussions with Narrabri Shire	
	Council and after the Shire didn't agree to an offer, did Whitehaven	
	return to the Shire with a lower offer knowing the affects to Boggabri	
	Community from this project?	
	BC – There is a VPA agreement for the approved mine which allocated	
	money to Gunnedah Shire and Narrabri Shire. A VPA for the approved	
	Vickery Mine of \$2.25m was agreed by NSC in 2014 and is included in	
	the Project Approval.	
	GM – Has this money been handed over yet?	
	BC – No, the VPA condition was that it would be paid when construction	
	started.	
	KB – Was the community consulted at the time?	
	AJ –That would be something council would have to arrange.	
	BC – The VPA for the VCP is a Condition of Approval. The \$2.25 million	
	for the approved mine was based on the tonnes to be mined. The	
	extension represents a relatively minor increase in tonnes (around 35 mil	
	tonnes). We have been discussing the VPA with NSC since 2016.	
	Whitehaven made an offer to extend the VPA for the VEP from the	
	agreed one using the same formula. That offer was made to both	
	councils at that time. The councils elected to let that offer sit on the basis	
	that they would wait to see what the EIS contained – bearing in mind we	
	have been working on the EIS for about three years – when the EIS was submitted in 2018 we reaffirmed the offer to the Councils. In the case of	
	Narrabri council the offer was not accepted. As previously indicated due	
	to a change in the footprint of the mine, the number of tonnes to be	
	produced was reduced, This was reflected in the offer put to Narrabri	
	Council in April this year and was communicated to the GM and the	
	Council. As of the last few days we have received correspondence from	
	Council rejecting that offer and putting a counter proposal forward.	
	KB – The VPA is calculated by the amount of coal? BC – Yes	
	KB – The community at Boggabri feels forgotten in all of this. We don't	

have a councillor to represent us at the moment. RF – How much does Narrabri Shire Council get out of the Narrabri	
Mine? What is the cents per tonne?	
BC – I'd only be guessing. I am not across this detail.	
RF – Wouldn't it be the same as most other mines?	
BC – I'd assume they are getting a VPA from a few different mines –	
Maules Creek, Narrabri, Boggabri, etc.	
GM – How much was the VPA for Maules Creek for Narrabri Council?	
BC – I'm not sure of this. KB – Boggabri doesn't want to miss out on this money. Our community	
will be impacted by this mine and we deserve some of this money.	
RR – To answer the initial question – why was the offer lower?	
BC – Because the amount of tonnes produced was going to be lower	
due to the change in the footprint of the mine.	
BT – Given the EIS for this project was completed in 2018, will	
Whitehaven be making a modification to their worst case surface water	
modelling for the VEP?	
GM – If you're an irrigator located on the border of two zones - you can't	
move water from one zone to another. How does that work for	
Whitehaven?	
DS – WHC will follow the relevant rules and regulations.	
GM – The question is around the water being extracted from zone 4 to	
transferred to Zone 11 at Maules Creek?	
DS – The Groundwater Assessment for Maules Creek indicates that	
Maules Creek Mine is located in an area of outcropping bedrock	
surrounded by Zone 4, Zone 5 and Zone 11. RH – Does Whitehaven have to buy additional water licenses to run the	
mine – if so how many?	
BC – Not on the basis of the modelling that has been carried out which	
includes a number of significant droughts. The modelling shows that	
WHC has sufficient licenses.	
GM – What would Whitehaven do if the government said you could start	
mining there tomorrow?	
BC – We would ramp production but after the mine had been	
constructed.	
GM – Do you have enough water to fire up Vickery?	
BC – That's why we have the bore field in the plans.	
GM – But if you had to buy a licence to go to Maules Creek you must not	
have enough licenses.	
BC – That's related to Maules Creek not Vickery. The borefield isn't approved at the moment so it can't be installed. It is part of the scope for	
this project.	
There was a question from one of the committee members, of the	
timeframe of the Planning Department and the IPC's for the final	
approval of the Vickery Extension.	
BC said that he was hoping that the Planning Department would give an	
answer before Christmas, but he was concerned that the timeframe	
being so close to Christmas that he thought that the next IPC hearing	
may be scheduled in the New Year.	
BC also said that he understood that the IPC Panel that had	
administered the first phase of the assessment process had been	
disbanded after it produced its Issues Report. It is understood that a new	
IPC Panel would be formed to administer the next phase of the	
assessment. It would expected that there would be some commonality in	
 the personnel comprising the two panels but presumably it would	L

	depend on availability of Commissioners.	
	GM asked RR and BC 'How could this be true when these 3 men have had only 18 months to get their heads around this project and that we would have 2 or 3 new committee people on the IPC for the final approval of the Vickery mine'. RR said that's what happens sometimes.	
5	Date and agenda for next meeting	
	TBA depending on the approval process. Whitehaven will communicate any developments to the CCC.	
	These minutes have been endorsed by the meeting Chair. Date: 11 th November.	
	Roberta Ryan	

Vickery Project

CCC Meeting

28 October, 2019





Agenda

- Present, introductions and Apologies
- Declaration of pecuniary interests
- Previous minutes
- Canyon and Vickery Environmental Monitoring Report
- Vickery Extension Project EIS Assessment process
- General Business
- Date and agenda for next meeting.



Canyon Coal Mine



Agenda

Independent Environmental Audit

Environmental Monitoring – as per Project Approval and Management Plans

- Biodiversity
- Air quality
- Groundwater
- Surface water



Independent Environmental Audit

Independent Environmental Audit is required every 3 years as per the Project Approval (DA 8-1-2005) by an auditor endorsed by the Department of Planning, Industry and Environment.

The Independent Environmental Audit Report was finalised in May 2019 by ERM.

Aim of the Audit is to:

- Assess the environmental performance of the development
- Assess whether the development is complying with relevant standards
- Review the adequacy of the Environmental Management Strategy and Monitoring Program

Copies were provided to all CCC members by 26 July 2019



Independent Environmental Audit – Findings and Actions

Stabilisation of gravel pit area

Stabilisation works occurred in August 2019.



Ensure all relevant documentation is sent to relevant agencies

Ongoing, WHC commit to following this requirement. Agreement with Councils to receive documentation electronically.



WHC has requested confirmation from the Department to satisfy the requirement.

Review water balance annually or request alteration to condition

Water balance has been updated in the Water Management Plan.

Ongoing maintenance of erosion within the void

To be backfilled.

Ensure any groundwater take is authorised and licensed

WHC have submitted all necessary applications for water take.



Biodiversity Management

Activities completed as per Rehabilitation Management Plan

Quarterly monitoring indicates that feral pig and fox numbers remained low. No control programs recommended, however continue to review trends.

Annual rehabilitation monitoring is underway with results arriving early 2020.



Air Quality Monitoring

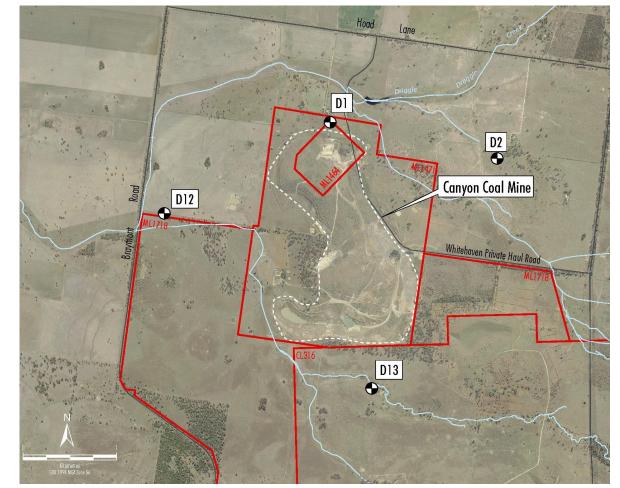
Depositional Dust monitoring as per Project Approval and Air Quality Management Plan

Depositional Dust (12-month insoluble matter results in g/m2/month)				
Site	Annual Average	Guideline		
D1	1.8	Annual average to be below 4		
D2	2.7			
D12	4.3			
D13	3.1			

Dust emissions are not a result of the development. Compliant with Project Approval and Air Quality Management Plan

Trends show higher annual averages at D12.

- Located adjacent to the Braymont Road
- Results are reported in the Annual Review



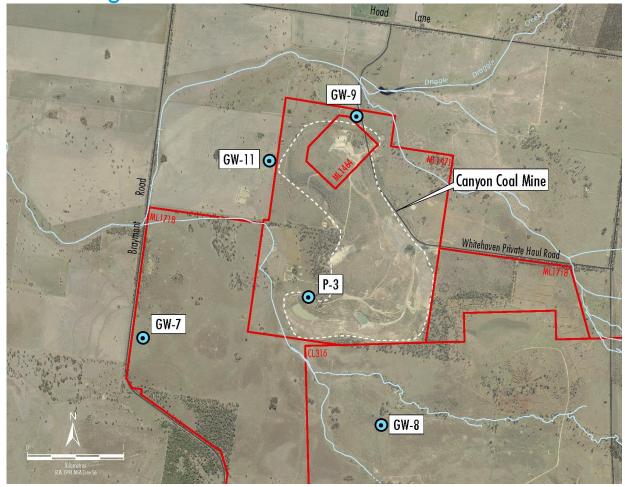


Groundwater Monitoring

Monitoring as per Project Approval and Water Management Plan

All sites have their standing water level assessed every 6 months. Levels are consistent at four locations since last CCC Meeting, one site shows a fluctuation in water level, with a solar pump on the bore.

Sites GW-11 and P-3 have water quality assessed every six months to review temporal trends. The results remain steady since the last CCC Meeting.





Surface Water Monitoring

Monitoring as per Project Approval and Water Management Plan

No surface water flow was generated since the last CCC Meeting. Monitoring will occur with flow events

Canyon Void water levels and quality are monitored on a 6 monthly basis. Water level and quality is consistent since the last CCC Meeting. Water extraction has ceased from the Canyon void for use at Rocglen and Tarrawonga mines.





No complaints received

http://www.whitehavencoal.com.au/sustainability/environmental-management/canyon-mine/

Canyon Mine	Search
C	Search
Project Approvals	
Closure Mining Operations Plan	RECENT NEWS
Mining Lease	
Environmental Assessments	Barada Barna People get a taste of partnership
Management Plans	possibilities on visit to North West NSW
Annual Review	Whitehaven releases inaugural Sustainability
	Report
Independent Audit	Whitehaven to acquire 7.5% interest in Narrabri Mine
CCC Minutes and Agenda	Record full year results FY19
Complaint Register	Collaboration to improve
Telephone Compla 0436	underground miner



Vickery Coal Mine



Agenda

Environmental Monitoring – as per Project Approval

- Biodiversity
- Air quality
- Groundwater
- Surface water

Specialist studies DPI&E site visit



Biodiversity Management

Biodiversity activities completed as required by EPBC Approval 2012/6263



Winged Peppercress Threatened Species Project Plan has been submitted to NSW DPI&E and Commonwealth Department of Environment and Energy.

The Project Plan describes measures to monitor, maintain and translocate the species.



Air Quality Monitoring

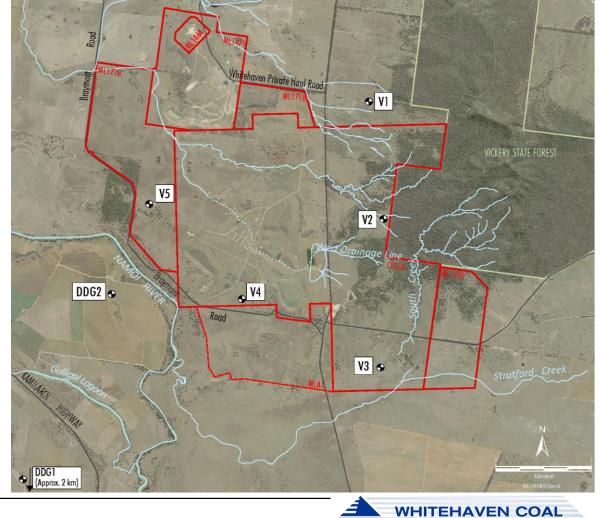
Depositional Dust monitoring as per Project Approval

Depositional Dust (12-month insoluble matter results in g/m2/month)				
Site	Annual Average	Guideline		
DG1	2.7	Annual average to be below 4		
DG2	2.2			
V1	1.8			
V2	1.1			
V3	8.0			
V4	2.4			
V5	2.4			

Dust emissions are not a result of the development. Compliant with Project Approval

V3 generally has the highest annual average of the Vickery depositional gauges.

Located on the corner of Shannon Harbour Road and Blue Vale Road.



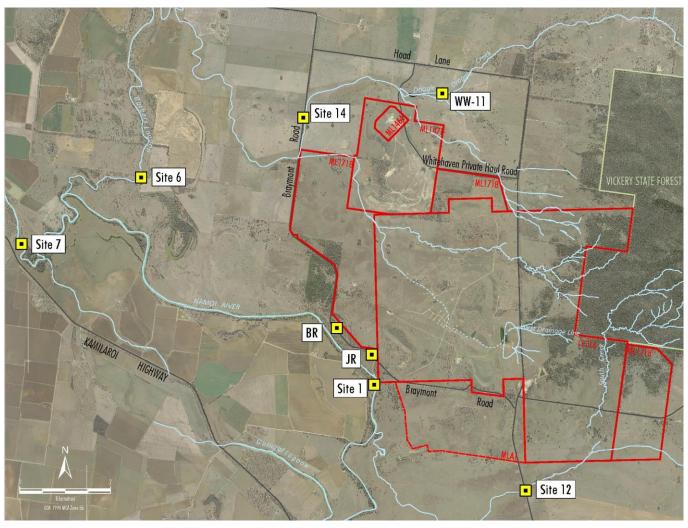


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Surface Water Monitoring

No surface water flow was generated since the last CCC Meeting.

Monitoring will occur with flow events.





Other Activities

Specialist Studies and DPI&E Site Visit

ENRS Consulting Land Contamination Site Inspection – 14 August 2019

The EIS included a Land Contamination Assessment that concluded that a Detailed Site Investigation (DSI) should be conducted for six features of interest. The DSI is to determine if remediation is required.

The aim of the site inspection was to visually inspect the six features of interest to prepare a Sampling Analysis Quality Plan to inform the DSI.

Department of Planning, Industry and Environment Site Visit – 13 August 2019

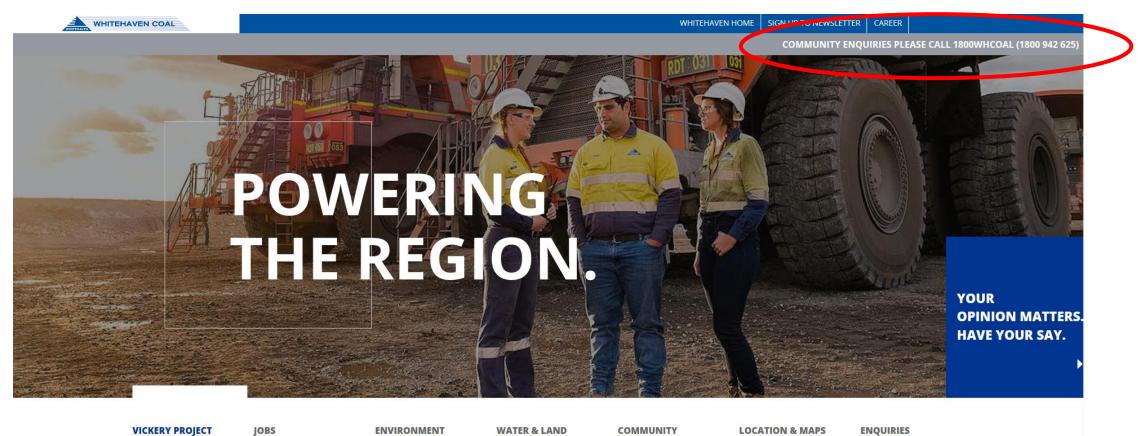
James Epstein and Heidi Watters of DPI&E requested a site visit for purposes of seeing the early works and to hand over responsibility from Heidi to James. No action required.





No complaints received

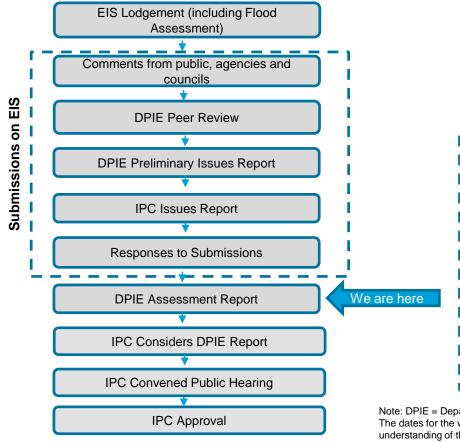
http://vickery.com.au/





Vickery Project status update

Working through the approval process



- Response to Submissions submitted in August 2019
- DPIE Whole of Government review issued Q4 CY2019



Note: DPIE = Department of Planning, Industry and Environment. IPC = Independent Planning Commission. The dates for the whole of Government and IPC approval are projected not fixed. They are based on best available understanding of the process but Whitehaven is not in control of the process



Amendments to Project

In summary, when compared to the EIS, the proposed amendment would:

- Reduce the total resource for the Project from 179 Mt to 168 Mt.
- . Result in a minor reduction in net benefits to NSW from \$1.21 billion to \$1.16 billion.
- Reduce Scope 1 and 2 greenhouse gas emissions from 4.1 million tonnes carbon dioxide equivalent (Mt CO_{2-e}) to 3.9 Mt CO_{2-e} , as well as reduce associated Scope 3 greenhouse gas emissions by approximately 23 Mt CO_{2-e} .
- Not change the peak production rate, disturbance footprint (as waste emplacement would continue to occur in ML 1718), mine life, workforce or hours of operation.
- Not result in additional environmental impacts beyond those assessed in the Project EIS (e.g. surface water, groundwater, air quality, noise).



Issues Raised

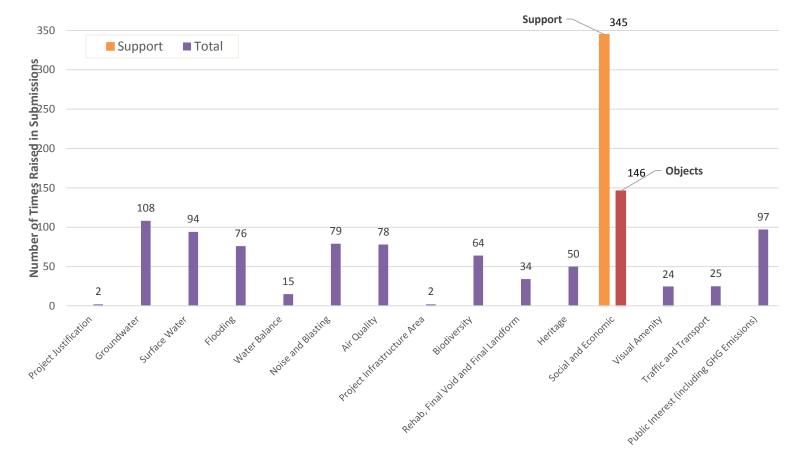
Most commonly raised issues:-

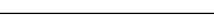
- socio-economic benefits;
- potential adverse socio-economic impacts;
- public interest concerns (including greenhouse gas emissions);
- potential impacts to groundwater, surface water and flooding;
- Potential noise and air quality impacts;
- Potential impacts to biodiversity; and
- The Project's rehabilitation and final landform.





Most commonly raised issues:-







Supplementary Environmental Assessments

- Flood modelling.
- Groundwater modelling.
- Further review of all Project years regarding potential noise and air quality emissions.
- Noise monitoring and rail noise analysis.
- Analysis of Coal Handling & Preparation Plant (CHPP) noise (including equipment sound power levels [SWLs] and location).
- Analysis of alternative Mine Infrastructure Area layouts and locations.
- Further analysis of rehabilitation data.



Footer

Response to Submissions

Responses expressed in the context of the issues raised in the IPC Report with reference to other submissions.

- Project Justification
- Groundwater
- Surface Water
- Flooding
- Water Balance
- Noise and Blasting
- Air Quality
- Infrastructure

- Biodiversity
- Rehabilitation, Final Voids, Landform
- Heritage
- Social and Economic
- Visual
- Traffic and Transport
- Public Interest





The issues raised by the IPC, DPIE, DPIE's Peer Reviewer and Submissions inluded:-

- Accuracy of groundwater modelling and predictions.
- Additional sensitivity analysis.
- Proposed groundwater monitoring and management measures.



In regard to the groundwater modelling:-

 Additional modelling and further explanation of the basis of the model and the methodology adopted further reinforced the observations by DPIE Peer Reviewer that:-

"My professional opinion is that the Vickery Extension hydrogeological and groundwater modelling assessment is fit for the purpose of mine dewatering environmental impact assessment (including cumulative impacts) and informing management strategies and licensing."

• And the IESC:-

"The IESC notes that a number of the studies completed for this project such as the surface water assessment and the studies to determine the extent of the alluvium have been completed to a high standard. The proponent should be commended for these studies and for obtaining peer review of many on the major reports provided in the impact assessment".



In regard to sensitivity analysis:-

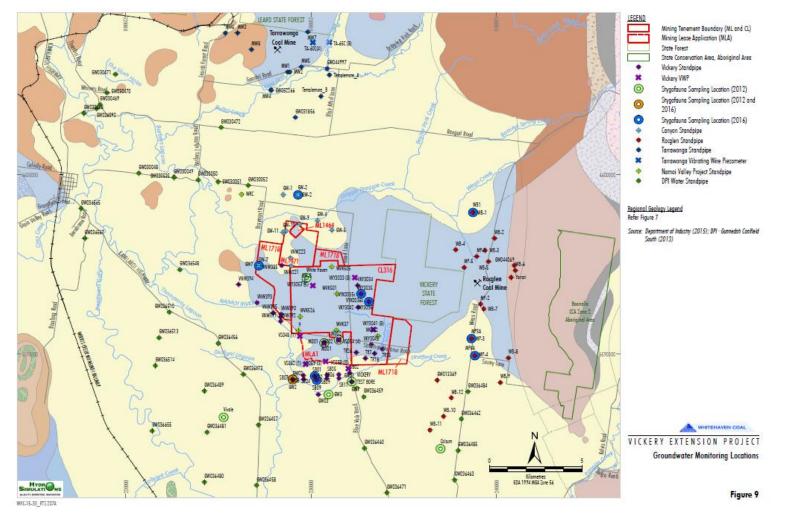
In summary, the setting of the open cut within the Maules Creek Formation, and the extensive data available for model development minimises the potential for model uncertainty. This includes the following key factors:

- The open cut is confined to the relatively low permeability Maules Creek Formation and avoids the alluvium, as confirmed by site-specific investigations.
- Extensive site-specific data is available to constrain hydrogeological parameters.
- There is a long record of monitoring of the effects of existing operations.
- The model has been calibrated to monitoring data.
- Additional sensitivity analysis was conducted in the Groundwater Assessment and in response to peer review.



- Proposed monitoring regime:-
- A Water Management Plan would be developed for the Project in consideration of the requirements of any relevant Development Consent conditions for the Project.
- The existing groundwater monitoring network (Figure 9) would be reviewed as part of preparation of the Water Management Plan with consolidation of the network as required.
- Should monitoring or an investigation show greater than 2 m drawdown at a privately-owned bore, and the drawdown is attributable to the Project, 'make good' provisions for the affected groundwater user would be implemented in accordance with the AIP, and may include:
- deepening the affected groundwater bore;
- construction of a new groundwater bore; and/or
- provision of an alternative water supply of appropriate quality and quantity.
- Due to the open cut acting as a localised groundwater sink, no significant adverse impacts to groundwater quality are predicted for the Project. Notwithstanding, groundwater quality management measures would be detailed in the Water Management Plan.









The issues were listed in the submissions included:-

- Accuracy of surface water modelling and predictions.
- Proposed surface water monitoring and management measures.



Surface Water

- Accuracy of surface water modelling and predictions.
- The site water modelling is based on 124 years of daily rainfall records, and as such, considers the full range of climatic conditions (i.e. rainfall and evaporation) that have been experienced over this period. The records include the Federation drought and significant droughts in 1935 to 1948, 1979 to 1983 and 1992 to 1996.
- If the worst case climatic condition is considered to be the lowest rainfall conditions ("dry conditions"), there would be no discharge from the site as water collected on-site would be used to meet water demands.
- If the worst case climatic condition is considered to be the highest rainfall conditions ("wet conditions"), then during these times there would be high dilution in the receiving environment of any water released via sediment dam overflows. No releases of mine water or coal contact water are predicted based on the worst case climate sequence modelled.



Surface Water

• Proposed surface water monitoring and management measures.

The Project surface water management and monitoring program will be developed to validate and verify the EIS predictions.

- Leading up to commissioning and during operation, surface water monitoring will be undertaken at points upstream and downstream on watercourses closest to the Project mining area (monitoring locations would be selected during development of the Water Management Plan).
- Water quality monitoring of sediment dams would include analysis of pH, TSS, EC, total alkalinity/acidity, sulphate, aluminium, arsenic, molybdenum and selenium. After a two year monitoring period the parameters being monitored would be reviewed.
- Water quality monitoring during a controlled discharge would be conducted in accordance with an EPL for the Project and would include analysis of EC, TSS, pH, oil and grease and total organic carbon.
- Water quality monitoring at selected locations along the ephemeral creeks surrounding the Project (on an opportunistic basis) would include EC, TDS, TSS, turbidity, pH, oil and grease, total organic carbon.

EHAVEN COAL



- Issues identified by the IPC and in submissions included:-
- Justification of the Project rail spur design.
- Accuracy of flood modelling and predictions.
- Coincident flooding of Namoi River and tributaries.
- · Justification of Probable Maximum Flood (PMF) assessment methodology.



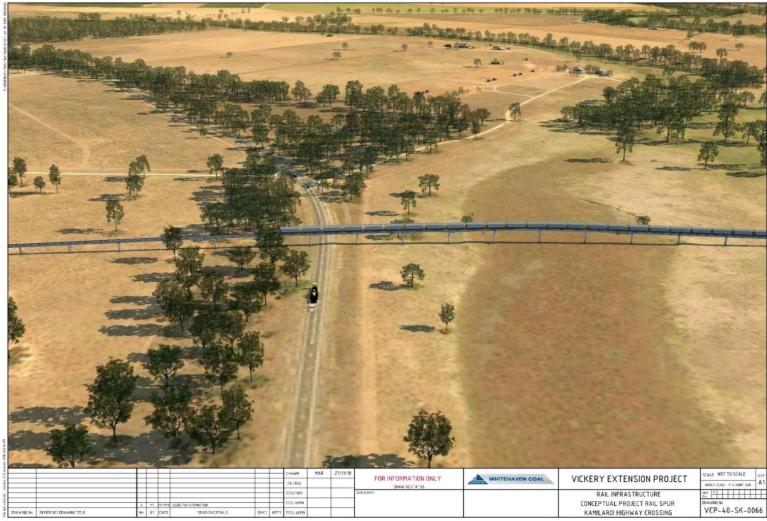


Justification of the Project rail spur design.

- The objective of the flood modelling included in the EIS was to demonstrate that the proposed location of the Project rail spur would comply with the design objectives of the FMP which includes impacts to flood levels, velocities and distributions on privately-owned land.
- Initial conceptual design decisions involved elevating the Project rail spur above predicted flood levels (i.e. a superstructure supported on either pylon-like structures or in-filled embankment sections) and conceptually locating openings to provide for minimal impact to existing flooding regimes. Proceeding with a conceptual design
- It is noted the objectives of the FMP relevant to privately-owned land are for "large design floods", which approximate the 1 in 20 year (i.e. 5% AEP) flood event. Therefore, the Project rail spur conceptual design, which includes provision to elevate the superstructure above the 1 in 100 year (i.e. 1% AEP) flood level, is considered to be conservative and prevents impacts for flood events well above what is required by the FMP.
- Planning peer review opined "The peer review has determined that that the assessment has been undertaken generally in accordance with industry best practice>'



Flooding





Flooding







Accuracy of flood modelling and predictions.

- The flood model extent was designed to assess the relevant aspects of the Project to flooding, in particular:
- the potential impacts of Project infrastructure to flood levels, velocities and distribution; and
- the immunity of the Project from flooding events.
- The key flood regime relevant to the Project is the Namoi River, given the Project rail spur crosses the Namoi River floodplain and the model has been developed based on data available to define the Namoi River flood characteristics. The model also considers local creeks such as Collygra Creek, Deadmans Gully, Stratford Creek, South Creek, Driggle Draggle Creek and Bollol Creek.
- The flood regime of other watercourses significantly upstream or downstream of the Project, which are tributaries of the Namoi River, does not require specific consideration as they are not directly relevant to the Project and their contributions to Namoi River flooding are accounted for in the data for the Namoi Rive



Flooding

- · Coincident flooding of Namoi River and tributaries.
- The catchment area of the Namoi River to the Project is approximately 18,000 square kilometres (km²) with an estimated 1% AEP peak discharge of 9,147 cubic metres per second (m³/s). By comparison, the catchment area of Stratford Creek that drains to the proposed rail spur is 105 km² with an estimated 1% AEP peak discharge of 221 m³/s.
- The relative sizes of the catchments mean that different storm mechanisms would produce peak discharges in each catchment. In other words, the likelihood of the regional and local flood producing events with the same AEP peaking at the Project site at the same time is very low.
- Notwithstanding, the model was rerun assuming coincident peaks.
- The difference in flood level impacts compared to the scenario where the local creeks flood independently from the Namoi River is imperceptible given that the Namoi River flows are significantly larger than the Collygra Creek and Stratford Creek flows.



Noise and Blasting

- Issues raised by the IPC, the DPIE and other submissions included.
- Noise modelling predictions.
- · Clarification of noise and blasting levels at other Whitehaven operations



Noise and Blasting

- Noise modelling predictions.
- References for each indicative SWL used in the modelling are included in the Noise and Blasting Assessment in accordance with the *Noise Policy for Industry* (EPA, 2017) (NPfI), either to industry (i.e. manufacturer) or measurements conducted at other mine sites (e.g. Maules Creek Coal Mine).
- Additionally, recent advances have been made by mining equipment manufacturers such as Hitachi to reduce SWLs. These SWL reductions have been achieved through implementation of a range of measures such as acoustic scanning of equipment to identify and mitigate noise sources, re-engineered mufflers, variations to fan speed and modification of louvres to improve air flow.
- Accordingly, while the Noise and Blasting Assessment adopted current best practice mining equipment SWLs (consistent with the requirement for the Project to implement reasonable and feasible noise mitigation measures) it is likely that at the time Project equipment are procured, equipment SWLs will be lower than those modelled.
- Ongoing maintenance of equipment would be conducted over the life of the Project along with SWL monitoring to confirm the ongoing acoustic performance of mining equipment.



Noise and Blasting

• Clarification of noise and blasting levels at other Whitehaven operations.

The majority of noise and blasting monitoring results recorded during the past 5 years across the Maules Creek, Tarrawonga and Rocglen Coal Mines are below the relevant compliance criteria.

• The Maules Creek Coal Mine Conditions of Approval Independent Environmental Audit Report (ERM, 2018) was conducted for the period July 2015 to June 2018 and concluded:

The results of this (noise) monitoring generally demonstrated compliance with the noise impact assessment criteria at each of the monitoring locations for the audit period, with each exceedance as a result of the application of the NSW Industrial Noise Policy 2000 low frequency modifying factor, such exceedances are considered to be 'technical exceedances' [i.e. an exceedance where the noise measurement itself does not exceed criteria, only the measurement plus modifying factor].

Blast monitoring is undertaken at monitoring locations BM 1 to BM 4 as per the requirements of the EPL and the Blast Management Plan. ... While there have also been a very limited number of blasts that have exceeded the 115dBL criteria, they have been insufficient to go above the 5% of allowable exceedances as authorised under the CoA and EPL.



Project Evaluation

Further modelling and analysis has also been undertaken to provide clarification of key aspects of the Project in response to submissions received.

This further modelling and analysis supports the predictions in the Project EIS, and accordingly also supports the conclusion in the EIS that, on balance, the Project has merit on the basis of the positive social and economic outcomes to the local region and NSW.

In summary, for key issues identified in the submissions, the Project is predicted to have the same or less environmental impacts than those approved for the Approved Mine, or can be designed and managed in accordance with standard guidelines and principles for mining projects. This includes the following:



Project Evaluation

This includes the following:

- The Project rail spur has been designed to comply with the objectives of the FMP.
- Predicted groundwater impacts comply with the 'minimal impact' considerations of the AIP.
- Sediment dams would be designed and operated in accordance with Landcom (2004).
- Predicted water requirements are within Whitehaven's existing licenses for the Project.
- Air quality emissions are predicted to comply with the criteria in the EPA's Approved Methods at relevant receivers.
- Operational noise emissions are predicted to comply with the criteria in the NPfI, or can be managed in with procedures outlined in the Voluntary Land Acquisition and Mitigation Policy at relevant receivers.



Project Evaluation

This includes the following:

Rail noise emissions are predicted to comply with the non-network criteria in the RING at relevant existing receivers.

^a Construction noise levels outside of standard hours would be maintained to comply with the 'Noise Affected' noise management level in accordance with the ICNG at relevant receivers.

[®] Biodiversity offset requirements can be satisfied in accordance with the FBA and the NSW Offset Policy.

The Project final landform would reduce the number of voids in the landscape when compared to Approved Mine and the current landform.

In consideration of the information provided in the EIS and RTS, Whitehaven considers the consent authority can reach a conclusion that the benefits of the Project outweigh its impacts.



VCP Commencement

- To position the VEP to be expeditiously executed post Approval.
- WHC elected to proceed with some works common to the VCP and VEP.
- These included:-
 - engineering surveying
 - geotechnical engineering investigations.
 - maintenance of access roads.
 - erection of compounds
 - establishment of site offices.
 - establishment of sediment control.
- In the planning phase consideration was given to:-
 - workplace health and safety
 - statutory requirements.
 - environmental compliance





Surveying Works









Namoi River Pump Blue Vale Void Primary and Secondary Compounds Access Roads Blue Vale Rd Re-Alignment



Geotechnical Engineering







Primary and Secondary Compounds









Site Access Roads and Fencing







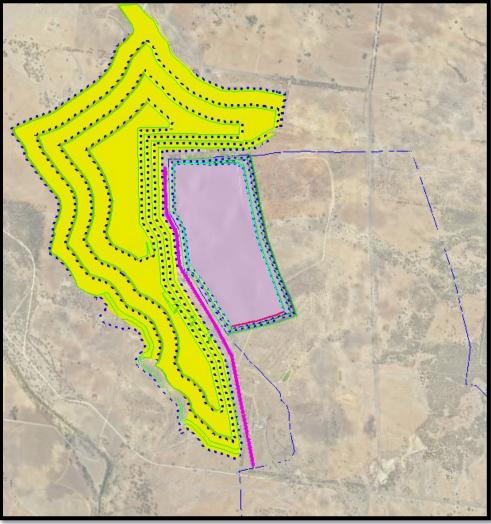


CHPP Preliminary Design





Five year Mine Plan



- Detailed mine schedule for FY20-24 has been developed.
- Dumping schedules developed.
- Considering optimum mine fleet
- Developing plans for managing surface water.
- Also topsoil management plan.

