MINUTES

Subject: Berrima Colliery Closure Working Group (Meeting 16)

Location: Berrima Cement Plant Engineering plus Microsoft Teams

Date & Time: 14th December 2022, 10.30am

Independent Chair: **Brad Mullard**

Attendees:
Brad Mullard - Chairperson
Peter McMillan – Environmental Inspector, NSW Resources Regulator
Greg Kininmonth – Manager Environmental Operations Southern, NSW Resources Regulator
Andrew Couldridge – NSW Environment Protection Authority
Greg Noonan – NSW Environmental Protection Authority
Ray Nolan – Local Resident
Girja Sharma – Assessment Officer Water NSW Catchment
Lance Ward – Medway Resident
Barry Arthur – Manager Environment and Sustainability, Wingecarribee Shire Council

Boral Personnel:
David Spears – Project Manager, Boral Cement
Greg Johnson – Environmental Sustainability Manager, Boral Cement
Kate Woodbridge – Stakeholder Relations Manager, Boral Land & Property)
Minutes: - Robert Byrnes*

Apologies:
Dr Ian Wright – University of Western Sydney
Clive West – Local Resident
Julian Brophy – Local Resident
Ravi Sundaram – Mining Catchment Specialist, WaterNSW
Daryl Gilchrist – Manager Catchment Protection – Water NSW
Tony McCormick – Local Resident representing Mandemar Lane
Graham Kelly – Local Resident
Alan Lindsay – Local Resident
Karly Roder – Environment Protection Authority
Girish Yadwad – National General Manager Operations, Boral Cement

These minutes reflect the presentation and consequent conversations conducted as part of this meeting. The content, while an accurate summation of proceedings, should not be taken to represent exact dialogue unless specifically minuted as such. Text in italics have been added by the minute taker for clarification or to reference items being spoken about such as the presentation slides, graphs or other meeting materials. For the full presentation, visit www.boral.com.au/medway. Minutes do not become 'official' unless endorsed at the following meeting by the appropriate representatives.

** Boral Cement uses the services of International Environmental Consultants (IEC) to undertake environmental monitoring and technical report preparations for the Berrima Colliery. Rob Byrnes, owner and Director of IEC, acts as the nominated minute taker for the Closure Working Group (CWG) via the appointment of Boral Cement.*

MINUTES

Meeting opened – 10.40am

1/2 Welcome and apologies/Terms of Reference

BM: Welcome to the new member from Medway Village, Lance Ward. By way of introduction, I am the independent chair of the Berrima Collier Closure Working Group working. Are there any apologies?
GJ: Julian, Girish, Karly Order and Daryl Gilchrist who was an option to attend.
Girja Sharma (GS) - I am representing WaterNSW for this meeting as Daryl and Ravi are on leave this week. I report to Daryl and Ravi is in the same team.
BM: We have Lance representing the Medway Village community.
Lance Ward (LW): My name is Lance Ward and I live in Medway. I have lived there for about 7 ½ years and I am a member of the Medway Community Group. Our current focus is trying to save the community hall and raise funds for its repair but we cover a range of other community issues.
GJ: Its good to have a representative of the Medway community in this group.
BM: Is there anything specific you would like to raise in the meeting?
LW: Not at this stage.
GJ: There is a community slide in the presentation so there will be opportunities to raise any specific issues later in the meeting.

BM: I would also like to remind people of the Code of Conduct for these meetings that all members respect other members opinions and conduct the meetings in a professional manner. Are there any comments on the previous minutes? As there are no comments, we will accept the minutes. We will now move onto actions arising from the minutes.

3. Actions from Previous Meeting

GJ: (*referring to presentation slide 9*) There were five actions, the first was for Boral to include water quality testing from behind the bulkheads and report results at the next meeting. I have some slides on the results of testing in the presentation. The second was to extend a further invitation to the Medway community representative, Lance to attend the meeting. The third was for Boral to provide a draft of the REF to WaterNSW and the Resources Regulator for review, which was forwarded by the EPA and we will give an update on the REF later in the meeting. Forth action was for Boral to determine the date and appropriate advertising for a pop-up community meeting in relation to the water treatment project. The pop-up community meeting was held on 26th November and we have a slide on that later in the presentation and we also notified the Resources Regulator about the meeting which was the last action noted in the previous minutes.
BM: Any questions? We can move onto the water quality results.

4. Water Quality Results Update

GJ: (*referring to presentation slides 13 to 15*) We are still discharging at around 1.9 ML day via the drain adit. The pH has improved, and we are managing the water with the additional lime dosing which is also reducing the concentration of metals. The Electrical Conductivity (EC) has settled above 1,000 µS/cm which is reflective of the water quality behind the bulkheads which the water treatment process does not change. Iron and Manganese have settled down quite a bit with Iron down to 0.05 mg/L and this compares will with the river concentrations which are naturally higher. Manganese has come back to the historical trend post bulkhead installation. Nickel has similarly fallen to post bulkhead installation levels while Zinc has fallen even further. The improvements have been the result of better pH management.

(*background information and description of closure process provided to Lance to give context to the water monitoring program and results*).

BA: You mentioned the iron is now down to 0.5 mg/L but what is the concentration in the river?
GJ: I will show the river results now which are naturally higher in iron.
GS: You have mentioned that the water quality parameters are coming down with the exception of Electrical Conductivity. Is there anything that can be done to reduce EC because lime is not going help.
GJ: Not with the system as proposed but we will discuss salinity in a bit more detail in the river water quality section of the presentation which compares the results to ANZECC guidelines.

GJ: (*referring to presentation slide 17*) These graphs show the upstream and downstream water quality as well as where our discharge is. The columns before the discharge point are upstream and the ones after are downstream of the discharge point. The results show that pH moves around a bit but there is no evidence of the discharge influencing river pH downstream of the discharge. The discharge does influence EC but is rapidly mixed in the river downstream to a level similar to the upstream sample location.

GS: How far downstream are the monitoring sites?
GJ: We have measured 300m downstream, 1 km downstream, above the Medway Rivulet confluence (2km downstream), 3 km downstream, Biloela (6 km downstream) and 9 km downstream. The graphs show the 6 km and 9km downstream sites. Historically the mixing zone is 300 m however in very dry conditions it can extend to Biloela which is where our Site Specific ANZECC trigger values have been site for. This is also the edge of our Mining Lease. When we were discharging high concentrations of iron into the river there was no increase in iron concentrations downstream, but you can also see that generally the river has higher concentrations of iron than the discharge concentration. With Manganese, the discharge concentration is higher than the river and there is a slight increase in concentration downstream but by the time it gets to Biloela and the Downstream site the concentration is equivalent to the Upstream site. Nickel and Zinc concentration in the discharge does influence downstream concentration however the levels are small and well within the ANZECC 95% protection water quality guideline. The Copper levels in the discharge are not influencing the river at all. However, with Sulphate we are starting to see a bit of an upward trend and there is an increasing influence downstream although the actual concentrations are still small.

BM: Any questions on the water quality?

GJ: (*referring to presentation slide 21 Bulkhead Water Quality Results*) Its important to gain an understanding of the quality of the water held behind the bulkheads as this is the water that we have to treat prior to discharge. The question raised in our last meeting was is the water quality behind the bulkheads improving over time. We took some samples behind bulkhead number 5 in late September 2022 and the results show that the water quality behind the bulkheads remains poor. The level of Iron is about 35 mg/L. To put that into perspective, our discharge level is around 0.05 mg/L. Manganese is around 12 mg/L behind the bulkheads but we are getting that down to less than 3 mg/L with our treatment process. The pH behind the bulkheads is slightly acidic at 6.4 while conductivity is above 1,000 µS/cm. Although the treatment system raises the pH to neutral it doesn't reduce the conductivity. Nickel is at 0.35 mg/L while Zinc is 0.5 mg/L behind the bulkheads while our discharge after treatment is running at 0.15 mg/L for Nickel and 0.25 mg/L for Zinc. We will be talking more about geochemistry studies later in the presentation.

PM: Could you only get to Bulkhead 5?
GJ: We can access the others, we chose Bulkhead 5 as this is the one where we have multiple earlier samples.

5. Water Treatment Update

DS: (*referring to presentation slide 25*) There is not much to add since last meeting. We are continuing to treat the water and the results of the discharge quality are consistent with the previous reporting period. Water quality behind all the bulkheads is pretty poor and the sample from Bulkhead 5 is consistent with all the bulkheads.
PM: Did you probe the other bulkheads, how can you be confident that the water quality is the same behind all the bulkheads? Do they all have the same level of flooding behind them or is there any air gaps?
DS: The only bulkhead with an air gap is Number 7 which is at a higher elevation than the others, the rest of the bulkheads have water levels above the roof of the coal seam.

PM: I am interested to know if there are any changes in dissolved oxygen.
DS: We can certainly take sample from each of the bulkheads including Number 7.
PM: The intent of the question is to see if the bulkheads are having an effect on excluding oxygen.
DS: Discharge volume has been very consistent over the period and the height of the water above the highest bulkhead has been maintained at its current level. The volume of water passed through the underground treatment system is the same as the amount of water make within the underground mine workings behind the bulkheads. This has been consistently 1.9 ML/day for some time now. There may be some fluctuations in water levels of a few centimetres up or down each week, but we are confident that the water make coming through the strata is consistent at 1.9 ML/day.

BM: We can move onto pit top treatment update.

6. Pit Top Treatment Project Update

GJ: (*referring to presentation slide 28*) We had a licence variation in December last year which involved the construction of a pit top treatment system and overland pipeline to the Berrima Cement Works. The first component was to prepare an environmental assessment of the project, which is referred to as a Review of Environmental Factors (REF). The REF is to assess the impacts of construction and the implications on water quality and where the water will go. The EPA will be responsible for assessing the impacts and providing the approvals (*referring to site layout of the pit top treatment system components slide 29*). The location has been designed to avoid clearing vegetation (*referring to slide 30 showing route of pipeline to Berrima Cement Works)*. The water will be pumped from the underground workings for aeration, pH correction and settlement within a multi celled surface pond. We have had a change in the project where we initially were going to discharge treated water back into the Wingecarribee River at a new point near the pit top which is upstream of our current discharge point. We submitted a draft REF to the EPA and they provided some feed back in relation to additional mixing zone impacts in a new section of river upstream of the current discharge point. We acknowledged that it would be better to pass the treated water back underground into the existing drain adit so the treated water will be discharged into the river at the same historic point from the mine. We also have an additional pond which will allow pumping of the water to the cement works. The cement works uses 0.6 ML/day just in cooling requirements for the Cement Works plus additional water for dust suppression. This water is obtained from on site dams at the Cement Works but is reliant on make up water pumped from the Wingecarribee River at the Berrima Weir. We have restrictions on taking water from the weir in low flow conditions. Basically, if water is not overflowing the weir we can't take water from the river. A key benefit of the surface water treatment project is than in dry times or when there is no water held on site at the cement plant that we will pump treated water from the pit top treatment system. We therefore will not need to take water from the Berrima Weir.

GJ: there will be some impacts during the construction of the project. This includes noise and dust from trucks and equipment but once the construction is completed there will be limited impacts. The construction activities will occur during daytime only. The EPA advised that they require a detailed noise impact statement be prepared which we are seeking to engage a consultant to prepare this. The benefits of the project is that we will be able to better manage the treatment of the water at the pit top than within the underground workings which will result in lower associated risks, improved water quality and treatment capability, reduced water pumped from the river by the Cement Works and improved baseflow. These next steps are not necessarily the ultimate final closure option for the mine.

GJ: (*referring to presentation slide 34*) Has the EPA discussed the REF with the Resources Regulator?
AC: Yes we have had a discussion with the Resource Regulator and we will probably meet again in January to go over it in more detail and we will also talk again with Boral as well. From our comments so far you can see that we are concerned about the impacts on any additional stretch of the river from a new discharge point and more detail on noise and air impacts during construction, particularly given the location of local residents to the construction area. We will be meeting with Boral and the Resources Regulator to finalise the content of the REF towards the end of January.

GJ: We advertised our pop-up drop-in community meeting with local residents of Medway and Berrima. The meeting was held on 26th November, and we had two community members turn up. One from Medway and one from New Berrima. We had a good chat with them and explained the project. The Medway resident seemed comfortable with the proposed pit top treatment and pipeline project. The question was raised in relation to access to water for the residents of Medway and fire fighting. We will be maintaining water access at the pit top for fire fighting. The Rural Fire Service has keys to the property and facilities to allow connection to fire fighting equipment will be maintained. The project does not include supplying water to the village of Medway.

BM: You say you had two people attend, how does that compare with previous community meetings?
GJ: The last community meeting was a few years back and was carried out over two weekends and covered both the Friday and Saturdays each meeting. From memory we had about 14 in total attended those meetings.

7. Resources Regulator Update

GJ: (*referring to presentation slide 36*) We have a directive to update our groundwater modelling. As we mentioned in previous meetings, the Resources Regulator has had an independent person reviewing our groundwater modelling and they want us to reassess the potential to put in additional bulkheads in an attempt to seal the mine and to determine what if any geochemical improvements may arise to water quality as the mine further floods and raises the water table up a few more metres. We also need to assess where the water would go in these scenarios and how long it would take for the water to improve to the same as background levels. We have started on this work. We are using Katarina David for the groundwater modelling and Mark Stuckey to update the geochemical assessment based on the updated groundwater modelling. Any further comments from the Resources Regulator?
PM: I think you have covered the main points. The directive just follows up on some of the modelling issues and firming up some of the closure options. It also looks at other closure options which take into account the pumping and surface treatment proposal. The work will tie up some loose ends so we know where the water will go under different closure options and the volume of water as well.

BM: Does that modelling take into account the new data you have obtained from the current bulkheads?
GJ: Yes. There separate due dates for the work components but ultimately it all needs to be finalised by the end of April 2023. So there will not be much to update for the community on until after April 2023, and similarly we

cannot finalise the REF until that work is done because it will influence the pit top treatment project solution as well.
BM: Are there any other questions for Greg?

GS: If I could clarify one thing, will the entire 1.9 ML/day be treated at the pit top?
GJ: All water will be treated at the pit top and all water will be capable of being discharged back into the Wingecarribee River via the existing discharge point of the mine. The cement plant will take water as it is needed, however the cement plant will first use stormwater collected at the cement plant storage ponds in order to maintain pollution control storage capacity and then from the pit top treatment system as needed. The volume of water taken from the mine will vary during the year with seasonal rainfall as well as between high rainfall years and low rainfall years. However it is anticipated that even during average rainfall years, the cement plant will be taking water from the mine on a regular basis.

8. Medway Community Update

BM: Is there anything else that Lance would like to add in relation to the Medway community?
LW: Not at this stage.

9. Communications Update

KW: (*referring to presentation slide 40*) We have already discussed the drop-in session in Berrima. I have had a couple of calls from Medway residents in relation to the weed situation on land that Boral owns. We have started spraying the weeds but this is still a work in progress. The weather has been a bit of a challenge but that work has commenced. I have also had some questions about illegal dumping on our land and we will be chasing this up with Council. This will be an ongoing Boral/community partnership exercise but hopefully we can get this resolved.
LW: I will pass this information on to the residents association.

BM: Any questions? If not we can move onto General Business. As there are no items of general business that brings us to the next meeting date. It sounds like it would need to be some time after next April.

9. Next Meeting

GJ: I am proposing some time next May given that there is not going to be anything to update the community on until the next round of studies are finalised. If something does come up in the meantime we can just share it with the group via email. We also need to consider that the Resources Regulator will need time to review the reports provided to them at the end of April.
BM: do you want to revert back to Fridays?

GJ: Would Friday 26th May 2023 be suitable for everyone?
BM: It sounds a long way off but we should at lest set the date if there are no objections. That brings us to the end of the meeting so I would like to thank everyone for their attendance and wish you all the best for Christmas and the New Year and look forward to all the updates next year.
GJ: Thank you also everyone for your work and attendance this year and to stay safe over the break and enjoy time with family and friends. Thanks again for your time to attend and participate in these meetings.
BM: Any final comments or questions?

GS: Are you going to share this presentation?

GJ: Yes it will be shared and posted on our web page.
BM: If no other questions I call the meeting closed.

Meeting Closed 11.40am

Summary of Meeting Actions:

1. Boral to take additional water samples from behind all the bulkheads and report results at the next meeting.
2. Should any material matters arise before the next meeting, Boral is to communicate this with the group.

Next Meeting: Friday 26 May 2023