

# Review of approval conditions of Maules Creek Coal Mine in relation to Water



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Below is a list of concerns raised by Maules Creek community around potential non-compliances of a range of conditions that the Whitehaven Maules Creek Coal (MCC) mine was approved subject to. There is concern that a number of water conditions are currently not being met and we seek to clarify this.

The key concerns are:

- MCC were required to validate their groundwater model annually, update their Water Management Plan and have an independent review at a number of junctures, but it seems they haven't.
- MCC were required to install 17 new groundwater monitoring bores, but haven't. The number of bores they're relying on for monitoring of water levels and quality seems highly inadequate and not consistent with the consent and the WMP.
- Additionally, MCC were supposed to validate the surface water model in the current annual review, but didn't.

#### 1. Have the Required updates to the Water Management Plan occurred?

The Maules Creek ground water and surface water systems are highly connected and very complex in their hydrogeology. This was recognized by Australasian Groundwater and Environmental Consultants Pty Ltd (AGE) who prepared the hydrogeological assessment for the Environmental Assessment (EA).

[The Water Management Plan](#) (WMP) was completed 31/3/2014 by Whitehaven for a two-year period and deals a lot with construction phase and first 5 years of mine life. It is based on a model of limited (and highly contested) data, relying heavily on an adaptive management approach which can only hope to be accurate, with regular and frequent input of up-to-date data.

As required by the [Project Approval](#) (PA 10\_0138) in Schedule 5, Condition 5 of and reflected in the [Water Management Plan](#) – 8.1 Review, “the Water Management Plan will be reviewed within three months of the submission of the Annual Review and updated to the satisfaction of the Director-General where necessary. The plan will also be reviewed within three months of an incident report (as specified in the consent conditions and the EPL), the completion of an independent environmental audit or any modification to the consent conditions. Following the review process, actions will be taken to address any recommendations, within three months of the finalised review.”

In accordance with [Project Approval](#) Condition Annual Review 4 and reflected in [the Water Management Plan](#) (WMP 6.3) specifies that the water model be recalibrated in 2017 and prior to the Review due every 3 years.

We have been unable to secure the updates to the Water Management Plan that should have occurred at the following junctures:

- following each of the Annual Reviews ([2013](#), [2014](#), [2015](#) and [2016](#))
- If there have been any incident reports, it should have also been reviewed
- The [Independent Environmental Audit](#) was undertaken in 2015 and released August 2016, which should have also triggered a review of the WMP.
- There have been two modifications which should have also triggered a review, MOD 1 and MOD 2.

There seems to be no public record on these reviews and updates.



Furthermore the original [WMP](#), stipulated a review period of two years meaning since this original WMP a further plan should have been released in:

- March 2016
- and again March 2018.

There seems to be no public record of these reviews and updates.

Within the [WMP](#) on page 80 it outlines the importance of regular updates "It is important to note that investigation outcomes are dependent on the accuracy of input assumptions. There is inherent uncertainty with respect to some key site characteristics (e.g. catchment yield/rainfall runoff, mining area groundwater inflows) which cannot be accurately determined prior to the commencement of operations."

## 2. Has the Water Model Been Recalibrated at the Appropriate Intervals?

As required by [Schedule 3, Condition 40\(c\) of PA 10 0138](#), (and reflected in [WMP](#) 6.4 Validation of GW Model) "Maules Creek Coal will commission an Independent Consultant to complete a review of the groundwater monitoring results against the predictions made within the groundwater model versus the model. This review will be commissioned annually. Should the annual review indicate that the observed versus modelled data is diverging the groundwater model will be progressively updated and refined to ensure that any possible impacts can be predicted. This model recalibration and validation will be required prior to an independent review every three years."

Should Schedule 3 have been followed there should have been:

- at least four independent reviews of the monitoring results
- the model should have been recalibrated at least twice.

## 3. Are the Groundwater Monitoring Bores In Place So GW Quantity Impacts can be Properly Monitored?

Prior to the approval of MCC there were 8 GW monitoring bores and 4 Vibrating Wire Piezometers (VWP) established in 2010 and monitored 2-3 monthly until 2013 which established the baseline for the [Water Management Plan](#) (WMP). One VWP failed (MAC 1284), and one had a dodgy sensor (MAC267) so was not used. One (MAC 268) was regarded as not representative so MCC arbitrarily adds 25m to its readings ([Annual Review 2016](#) Page 51).

As mining progressed 2012 - 2017, the original 8 bores and the 4 VWP were destroyed by mining. 4 Replacement Bores were installed further away from the mine site.

With the Replacement Bores installed, no comparative hydrographs are given to allow for a comparison of the baseline hydrograph with current hydrographs. Appendix C of the [WMP](#) should have borehole construction logs which may help but this is not in the publicly available version.

The [Project Approval](#) requires monthly reporting on GW standing levels which is provided to the CCC members. MCC have been using 15 monitoring sites (6 of which have no readings) (as an example this can be seen in the most recent [CCC minutes from November 2017](#) on page 11). It cannot be seen how the currently reported bores correlate with the original bores used for the baseline.

To assist in making a direct comparison, we request a map and table version of the original GW monitoring bores including location and depth and standing water levels, with a comparison of the current GW monitoring bores locations, depths and standing water levels.



The [Annual Review of 2016](#) provides data for GW levels in Appendix E, again with 15 bores listed and 4 without any readings. Again it is not clear how these compare with the original baseline used in the WMP so it is unclear how the community is to know if there are negative impacts on bore standing water levels.

In 2017 there were 15 monitoring bores reported to the [CCC \(April to June 2017 Table 10\)](#) however of these, BCM01, BCM03 and Reg 10 have been dry since construction and Reg5a has no reading. Furthermore, RB01a and RB02a were decommissioned in Mar 2017. This leaves 9 monitoring bores for standing water level. Most of these are part of the regional monitoring network so are located a lot further away from the mine site than the original monitoring bores.

The PAC made four recommendations on groundwater in Appendix 6 Page 58 of the [Project Approval](#). One was specifically that “an additional 17 monitoring bores be established” ([WMP 6.3.6](#)) but it is unclear if this is on top of the existing 10 originally used for the baseline (which no longer exist).

Would the PAC be satisfied with the level of monitoring currently occurring given this special recommendation?<sup>1</sup>

The [IEA](#) in 2015 picked up that only one monitoring point (RB01a) was unable to be sampled quarterly and identified this as a non-compliance of EPL Condition M2.3. It is unclear with the IEA assessed the current monitoring network against the baseline provided in the WMP.

There is some reliance on neighbours’ bores for monitoring six monthly. Listed in Table 6.5 in the [WMP](#) are 19 bores MCC have access to. In the [Annual Review 2016](#) Appendix E, Table E3 lists 12, with full results only available for five of these. These bores are given different names to those used in the WMP so it is impossible to compare with any baseline.

Furthermore the original baseline hydrograph in Figure 6.2 of the [WMP](#) which sets the water levels of the original monitoring bores, is difficult to see what the standing water levels are, and therefore difficult to compare with the current monitoring provided to the CCC and the Departments.

[WMP 6.2.4](#) states that by 2014 electric water loggers should have been installed everywhere. Has this occurred? The [IEA](#) (2015) found a non-compliance at 6.2.4 (page 30) that no loggers were installed in piezometers during 2014 as required by the [Water Management Plan](#) (WMP). There doesn’t appear to be any rectification of this non-compliance.

#### 4. Is The Correct Water Licence Held?

The progression of open cut mining intercepts groundwater aquifers, causing water to flow into the mine pit. To compensate for this water “use” MCC purchased zone 11 groundwater licences<sup>2</sup>. However these licences allow for general security take, meaning they can be switched off as required. Where water flows into a pit and cannot be “turned off” this would be accurately be described as “high security” take. It is not possible to have a high security groundwater licence in zone 11, therefore we are concerned that this type of licence is not applicable to this type of water take.

Does the mine hold an inappropriate licence for this type of water take?

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<sup>1</sup>PAC (Planning Assessment Commission) is now called IPC (Independent Planning Commission).

<sup>2</sup> WAL 12479 is a 78ML zone 11 groundwater licence owned by Whitehaven, purchased as part of the property “Green Gully” purchase



### 5. Should A Section 324 Be Issued Immediately?

During dry times in 2007 the Minister enacted a Section 324 to protect water users higher up Maules Creek who were seeing impacts to their stock and domestic bores. At the time, the flow of water over Elfin Crossing Gauging Station was less than 50mm so this Section was given to zone 11 water users above Elfin Crossing, stopping them from pumping groundwater.

Currently Elfin Crossing has completely stopped flowing and yet we have not seen a Section 324 enacted on zone 11 water users (including WAL12479, owned by MCC). Water has completely stopped flowing over the Elfin Crossing Gauging Station, which previously would be enough to enact Section 324.

Will the Minister once again enact a Section 324 on all zone 11 licence holders above the crossing?

### 6. Are the Appropriate Processes in Place to Identify Groundwater Quality Impacts?

The [WMP](#) plans states (page 101) that of the 8 GW monitoring bores in existence in 2010, all of these except two (MAC1219 and MAC1259) can't be used for chemistry baseline in the [WMP](#) (they are only used for standing water levels) because they are contaminated by the cement used. However they are continued to be included for chemistry levels in the [WMP](#) to create the baseline on page 102-105.

But then MAC1259 which is one of only two that can be used for chemistry according to the WMP, is not even listed in Table 6.2 on page 106 or Fig 6-6 on page 104 of the [WMP](#) that lists all the acceptable levels of water quality.

Essentially this leaves only one bore (MAC1219) whose readings can be used for chemistry to generate a baseline on which to base future comparisons.

This should be fully reviewed.

When it comes to monitoring the groundwater quality MCC provide a monthly report to EPA which has bi-monthly monitoring data to correspond with EPL Monitoring requirements. The EPL reporting for [2017](#), [January 2018](#) and [February 2018](#), shows a remaining 5 bores used for GW quality, three of them (BCM01, BCM03 and Reg10a) have been dry since installation and now the remaining two (RB01a and RB02a – both “replacement bores” of the original monitoring bores that were destroyed by mining) have now also been removed by the progress of mining.

Whilst for nearly two years there has been absolutely no monitoring or reporting of GW quality including in the monthly EPL reporting, we note the [March 2018 EPL reporting](#) lists one bore with readings (RB05a). This bore had not been reported on previously.

We would assert that the current monitoring bores cannot provide consistent groundwater monitoring.

### 7. Are Surface Water Quality Impacts Being Appropriately Monitored?

Despite the [WMP](#) plan having an objective of “no discharge of mine water off-site” (section 4.2, page 50) the Raw Water dams (SD1 – SD11) can overflow and drain into Back Creek. These discharges must comply with the concentration limits listed in the [EPL](#) at L 2.5 of PH, TSS and Oil & Grease unless “the discharge occurs solely as a result of rainfall measured at the premises that exceeds 38.4 millimetres over any consecutive 5 day period immediately prior to the discharge occurring” ([EPL](#) L2.5 (a)).



During 2017 Q2 there were three such events. In the reporting to [CCC April to June 2017](#) Table 13 presented 3 wet weather discharge events and the 3 parameters for comparing pollutants (TSS, Oil and Grease and PH). However these are not documented once for each parameter for each event. It has the 3 parameters once. Also the TSS "Criteria" level has not been documented. Eventhough the limits don't apply because during a large rainfall event, they are not required to fit in the criteria for TSS. But the limit is 50mg/L according to the [WMP](#) table 4.9 and they note the Maximum discharge was 128 mg/L.

Furthermore the [EPL](#) L2.3 states these are the only 3 pollutants allowed during a wet weather discharge, why are none others measured? It is clearly stated in L2.3 "To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s."

What level of pollutants are being discharged during wet weather events, both those "allowable" pollutants and those not mentioned?