



# **Upper Hunter Mining Dialogue**

## **Water Accounting Framework**

### **2019 Water Use Summary Report**

## Introduction

The nine coal producers of the Upper Hunter, through the Upper Hunter Mining Dialogue (the Dialogue), have agreed to provide contextual information on water stewardship through the Water Accounting Framework annual project to provide a regular report to stakeholders on water use by Upper Hunter mining operations.

Key goals of the Joint Environment Working Group regarding water quality and stewardship include:

- Goal 1 - Develop a better understanding of the region's water resources and the existing and potential impacts of development on the Hunter Valley catchment; and
- Goal 2 - Demonstrate and promote responsible and efficient use and management of water in the Hunter Valley.

## Annual Water Management Statement and Contextual information

Following feedback received at the 2018 Annual Forum Discussion Sessions, the Dialogue's Steering Committees and Working Groups noted that while the Water Accounting Framework is improving the transparency of industry's water management practices, the results are provided in the absence of contextual information that may be relevant to the figures published.

Members supported the Dialogue secretariat liaising with industry to prepare an annual water management statement and other contextual information regarding stewardship initiatives for each company, to coincide with the provision of data for the annual water accounting project. This project will address the identified gaps and provide context to the published results, while helping to fulfil the second water-related goal of the Working Group in providing information to the community on water stewardship initiatives.

Industry is continuing this project, and have been asked to provide information on an annual basis, including:

1. Provide an overview of the 2019 water accounting framework data submitted by your company. This could incorporate any contextual information regarding water efficiency, reuse, recycling, and management programs onsite.
2. Provide any information regarding specific water stewardship programs or initiatives implemented onsite that the Dialogue could include as a case study.

Responses from each company have been collected and included on the following pages.

**Bengalla Mining Company**  
**2019 Annual Statement**

Report not submitted.

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**BHP - Mt Arthur Coal**  
**2019 Annual Statement**

Mount Arthur Coal (MAC) has implemented a water management system which includes surface and groundwater management. An annual site water balance is prepared to assist with modelling and prediction of water supply and usage under different climatic scenarios. The water accounting framework includes a number of data sources, where possible recorded data is used, where recorded data is not available, values are either estimated from other measured data or simulated in the water balance model.

During the reporting period there were no variations from the current MOP related to water management activities. Rainfall in 2019 was significantly below average conditions. MAC did not discharge any water to the Hunter River from its licensed discharge point under the Hunter River Salinity Trading Scheme (HRSTS) during the reporting period.

MAC used more water on dust suppression in 2019 due to the very dry conditions compared to 2018. An additional 474 ML was used from dust suppression in 2019 compared to 2018. There was a decrease in water stored on site of 1,370 ML in 2019.

MAC continues to seek water saving opportunities and implement water management programs onsite to improve efficiencies.

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**The Bloomfield Group**  
**2019 Annual Statement**

Rix's Creek Mine has implemented a water management system which includes surface and ground water management. An annual site water balance is prepared to assist with modelling and prediction of water supply and usage under different climatic scenarios.

The Rix's Creek Mine Water Management Plan was approved in January 2019 to enable flexibility in water management outcomes by enabling the movement of water between the northern and southern areas to better utilise water resources and optimise operational activities.

During the reporting period there were no variations from the current MOP related to water management activities. Rix's Creek Mine is a nil discharge site, with no licenced discharge point under the Hunter River Salinity Trading Scheme (HRSTS).

No water was extracted from clean water creeks or rivers and used for mining operations during the reporting period. Water caught in the dirty water system was utilised for dust suppression of haul roads. Recycled category 3 mine water was also used for the washing of coal at the Rix's Creek North and Rix's Creek South Coal Handling Preparation Plants (CHPPs). Even during a prolonged drought, Rix's Creek Mine had sufficient mine water storage for continued mining operations.

Rix's Creek Mine continues to identify water saving opportunities and implement water management programs onsite to improve efficiencies.

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## **Glencore**

### ***2019 Annual Statement***

#### **Hunter Valley Operations (HVO)**

Hunter Valley Operations (HVO) is located approximately 24km north-west of Singleton, New South Wales. HVO produced 13.6 million tonnes of saleable coal in 2019. HVO manages surface and sub-surface water according to three main objectives: fresh water usage is minimised; Impacts on the environment and neighbours are minimised; and Interference to mining production is minimal.

This is achieved by: minimising freshwater use from the Hunter River; preferentially using mine water for coal preparation and dust suppression; an emphasis on control of water quality and quantity at the source; segregating waters of different quality where practical; recycling on-site water; ongoing maintenance and review of the system; and disposing of water to the environment in accordance with statutes and regulations.

Below average rainfall of 439 mm of rainfall was recorded at HVO in 2019 producing an estimated 2,557 ML of runoff. Water falling on undisturbed clean water catchments is diverted off site into natural systems where possible. Groundwater inflows to the pits are calculated via numerical groundwater modelling methods. Groundwater inflows were estimated to have contributed 3,348 ML to the site during 2019. 4,654 ML of fresh water was pumped from the Hunter River during the reporting period. Due to low rainfall, impounded mine water reduced to a point where it was necessary to commence importing water from the Hunter River and neighbouring mines

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## **Malabar Coal**

### ***2019 Annual Statement***

The Maxwell Infrastructure site is currently in the closure phase of the operation with rehabilitation activities and some ancillary activities such as grading of roads and maintenance of equipment occurring.

Maxwell Infrastructure manages water use and impacts in accordance with the Water Management Plan. The site's water management system does not actively draw water from

external surface or groundwater sources, nor discharge to the environment. Water passively enters the site water management system through surface water runoff and passive aquifer intake into the open cut pit. Water is used for vehicle and equipment wash-down and for dust suppression and returned to water storages or lost through evaporation. A small volume of potable water is used on-site for human use and to provide cattle with drinking water.

Water consumption has reduced substantially over the long-term at Maxwell Infrastructure, particularly since mining ceased in 2016. The associated reduction in operational activity has decreased raw water demand and the reduction in the number of people on site has decreased demand for potable water.

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### **Mount Pleasant Operation 2019 Annual Statement**

The site water balance for 2019 was generally consistent with 2018. Dust suppression was reduced in comparison to 2018, likely due to the initial excessive dust suppression requirements during construction and continuation of early stages of mining operations in 2018. There was an increase in evaporation in the reporting period likely due to meteorological conditions (i.e. drought) and potentially due the spread of volume of water stored on site at different dam infrastructure to facilitate the dam optimisation works.

There was 58.8 ML less water extracted from the Hunter Regulated River Water Source for use at the site compared to the previous water reporting period. This is likely due to the initial filling of the dam infrastructure during the previous period and subsequent emptying throughout the 2019 reporting period, due to dam optimisation works undertaken and delays in expected CHPP demands.

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### **Muswellbrook Coal Company 2019 Annual Statement**

Muswellbrook Coal Company (MCC) operates in accordance with a Water Management Plan that has been approved by Muswellbrook Shire Council. A site water balance has been prepared to assist with modelling and prediction of water supply and usage under different climatic scenarios.

MCC obtains all of the water required for mining from water that has been collected in old underground workings. This water is not suitable for use in irrigation or for stock water. MCC does not extract any water from the Hunter River or local creeks.

MCC are a nil discharge site meaning that we do not discharge any water into the surrounding environment.

At least 50% of coal produced by MCC does not require washing and this significantly reduces the amount of water required in the coal processing process.

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**Peabody Energy**  
**2019 Annual Statement**

During the reporting period (2019) there were no variations from the current MOP related to water management activities. Dry conditions continued to prevail over the reporting period with inflows from rainfall and runoff low and the continued decline in the stored inventory of mine affected water. Consequently, WCPL did not discharge any water to the Hunter River from its licensed discharge point under the Hunter River Salinity Trading Scheme (HRSTS) during the reporting period.

As a result of the continued dry conditions WCPL used significantly more water from its WALs than the previous reporting period. Over the reporting period approximately 2150 ML and 395 ML were drawn from the Hunter River and Wollombi Brook respectively.

WCPL continues to identify water saving opportunities and implement water management programs onsite to improve efficiencies.

Note that the water balance calculation is subject to a closure error of approximately 240 ML as a result of the different methodologies and inherent accuracy used to determine the various water fluxes. WCPL is continuing to improve its data collection, processing, and estimation procedures.

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**Yancoal**  
**2019 Annual Statement**

**Mt Thorley Warkworth (MTW)**

Mt Thorley Warkworth (MTW) is located approximately 70km north-west of Newcastle, in the Hunter Valley region of New South Wales. MTW operations consist of two adjacent open cut mines (Mount Thorley Operations and Warkworth Mining Limited). MTW produced 12 million tonnes of saleable coal in 2019.

MTW has an extensive network of water management system monitoring data, including the following:

- Automatic weather station at Charlton Ridge.
- Monthly water level/storage inventory readings.
- Metered haul road dust suppression usage.
- Metered pipeline raw water usage.
- Metered pump transfers at various locations around the site.
- Plant ROM and product tonnages.
- Plant tailings volume and solids flow rates.
- Controlled offsite discharges.
- Water quality in site dams and surrounding waterways.

Total rainfall recorded during 2019 was 303.8mm, which is significantly below the long-term average.

Catchment areas and associated land use classifications within the mine have been determined from topographic mapping and aerial photography. Due to mine disturbance, infiltration of overburden emplacement areas may report to either the open cut pit or the surface drainage system. This is accounted for in the OPSIM model by specifying separate surface flow and baseflow catchments.

### **Ashton Coal Mine (ACM)**

The operational facility is the Ashton Coal Mine (ACM) which is an underground mining operation with one previously mined open cut void. The ACM is located in the Hunter Valley approximately 14 kilometres (km) north-west of Singleton in New South Wales. Existing and future underground operations extend southwards and are located between Bettys Creek (to the north), the Hunter River (to the south), Glennies Creek (to the east) and Bowmans Creek (to the west). Glennies Creek and Bowmans Creek are tributaries of the Hunter River while Bettys Creek is a tributary of Bowmans Creek. The Hunter River flows in a south-easterly direction and reports to the South Pacific Ocean near Newcastle.

ACM sources water from rainfall/runoff which falls on the disturbed surface operations, dewatering of groundwater ahead of mining, interception of groundwater by mining and licensed extraction from both the Hunter River and Glennies Creek.

The Process Water Dam (refer Figure 1) is the main above ground water storage (dam) on site. With an estimated capacity of 60 ML, it receives pumped inflow from most other storages on site. A number of smaller storages (refer Figure 1) are used to capture runoff and contribute to the supply of various water demands on site. The North-East Open Cut (NEOC) is the largest available water storage on site and comprises a previously mined open cut void which is progressively being filled with coarse rejects, with water stored within the coarse rejects pore space and within the adjacent in-pit waste rock emplacement pore space.

ACM has three main water demands being Coal Handling and Preparation Plant (CHPP) supply, underground supply, and above ground dust suppression. A total of 2.05 million tonnes (Mt) of coal was processed over the 2019 calendar year resulting in a CHPP demand of approximately 596 ML or 291 litres per feed tonne. Metered underground supply was 189 ML while dust suppression use over the 2019 calendar year was measured to be 42 ML.

The ACM is a nil discharge site. Water sourcing activities at the ACM must follow the rules set out in the Hunter Regulated River Water Sharing Plan, the Hunter Unregulated and Alluvial Water Sharing Plan and the Environmental Protection Licence (EPL11879).

Moreover, the ACM has its own operational management policies and regulations aimed at maintaining water supply and minimising discharge risk. Development consent requirements include an additional layer of regulatory access requirements.