

Goulburn River mining precinct

The NSW Status Report project is an initiative by the Land and Water Commissioner in response to community concerns on monitoring and impacts from coal mining and CSG projects. The reports bring together data from multiple sources (both government and industry). The aim of the reports is to help readers gain an understanding of long-term trends.

All enquiries about this report should be directed to the NSW Land and Water Commissioner.

E: commissioner@landandwater.nsw.gov.au

T: (02) 6391 3429.

Only data reported as raw figures on company websites has been displayed. For more information on company data visit:

- Ulan Coal Mine
www.ulancoal.com.au
- Moolarben Coal Mine
www.moolarbencoal.com.au
- Wilpinjong Coal Mine
www.peabodyenergy.com

For information on licensing, project approvals and NSW Government data visit:

Department of Planning and Environment (DPE)
www.planning.nsw.gov.au

Division of Resources and Geoscience (DRG)
www.resourcesandenergy.nsw.gov.au

Environment Protection Authority (EPA)
www.epa.nsw.gov.au

Department of Primary Industry (DPI)
www.dpi.nsw.gov.au

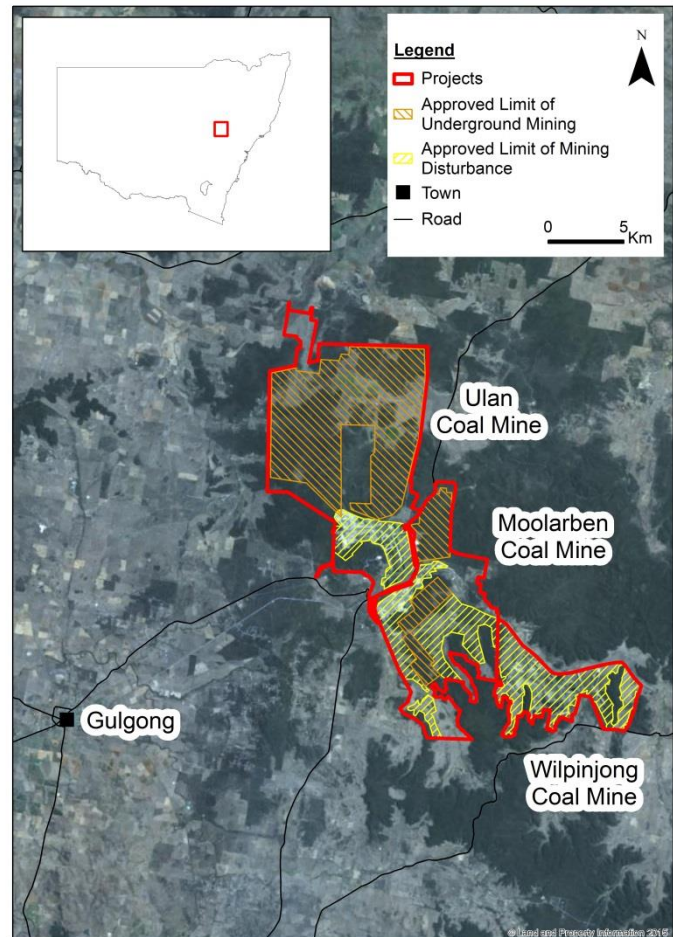


Figure 1. Map of Goulburn River mining precinct

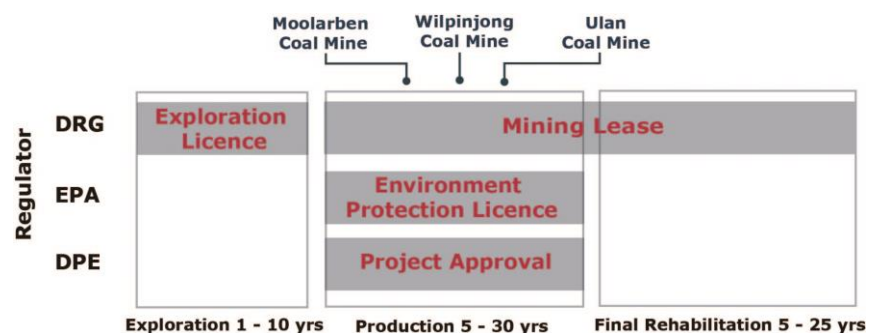


Figure 2. Indicative timeline for Goulburn River mining precinct

Projects

Ulan Coal Mine

Item	Data
Type	Open cut and Underground coal mine
Rate of extraction limit	20 million tonnes of coal per year
Operator	Ulan Coal Mines Limited
Commenced	1920s
Local or state government approval	State
Project approval	1999 (DA113-12-98 – surrendered), 3 modifications 2010–2033 (08_0184 – current), 3 modifications
Current applications for planning approval	0
Rights to mine	CCL741, ML1366, ML1467, ML1468, ML1554, ML1511, ML1656, ML1365, ML 1341, MPL315 (MLA469, MLA471, MLA475 and MLA507 – seeking new mining titles)
Environment Protection Licence	EPL394 (from 2001 with 27 licence variations)
Water licences	20BL173872, WAL27887, WAL37192, WAL36667, WAL19047 Additional groundwater monitoring licences held
Native vegetation approval	EPBC 2009/5252 (2010), EPBC 2015/7511 (2016)

Table 1. General data on Ulan Coal Mine

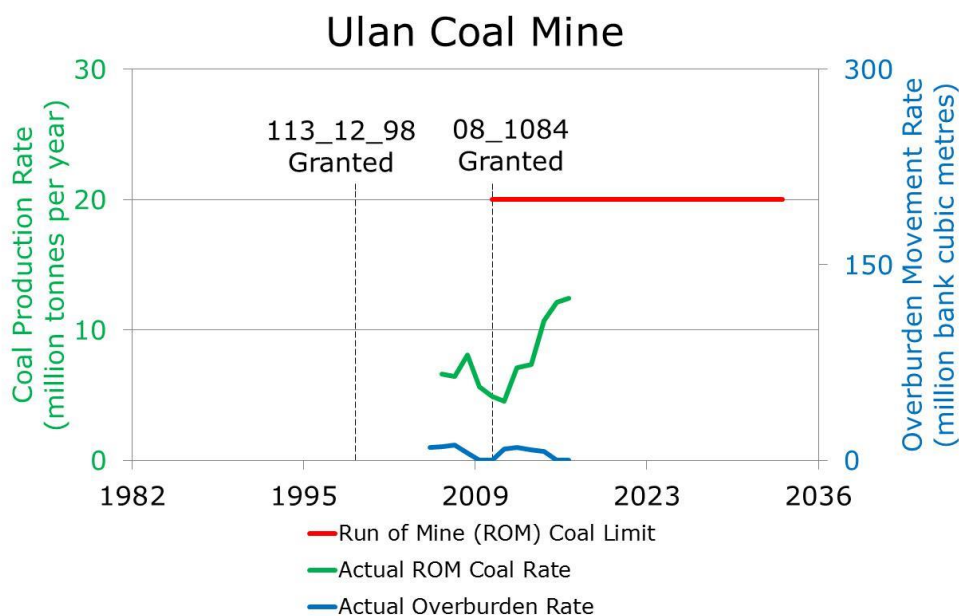


Figure 3. Timeline for Ulan Coal Mine

Moolarben Coal Mine

Item	Data
Type	Open cut and underground coal mine
Rate of extraction limit	21 million tonnes of coal per year
Operator	Moolarben Coal Operations Pty Limited
Commenced	2009
Local or state government approval	State
Project approval	2007–2038 (PA05_0117 – current), 13 modifications 2015–2038 (PA08_0135 – current), 2 modifications
Current applications for planning approval	0
Rights to mine	ML1605, ML1606, ML1628, ML1691 ML1715
Environment Protection Licence	EPL12932 (from 2008 with 13 licence variations)
Water licences	WAL36340, WAL37582, 20BL172002, 20BL173923, 20BL173935 Additional groundwater monitoring licences held
Native vegetation approval	EPBC 2007/3297, EPBC 2008/4444, EPBC 2013/6926

Table 2. General data on Moolarben Coal Mine

Moolarben Coal Mine

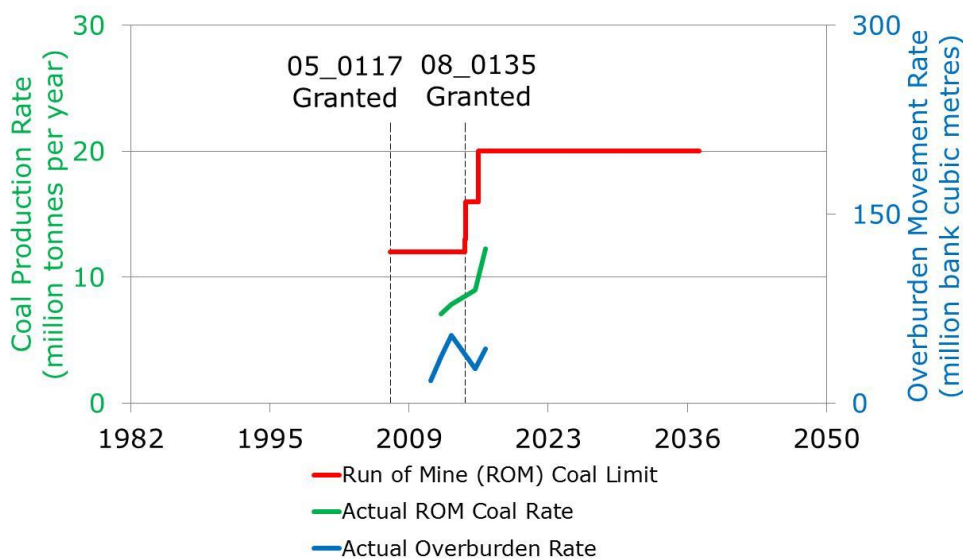


Figure 4. Timeline for Moolarben Coal Mine

Wilpinjong Coal Mine

Item	Data
Type	Open cut coal mine
Rate of extraction limit	16 million tonnes of coal per year
Operator	Wilpinjong Coal Pty Limited
Commenced	2006
Local or state government approval	State
Project approval	2006 (PA05-0021 - current), 6 modification 2017–2038 (SSD 6764 - current)
Current applications for planning approval	0
Rights to mine	ML1573
Environment Protection Licence	EPL12425 (from 2006 with 21 licence variations)
Water licences	WAL21499, 20BL173517, 20BL173516, 20BL173514, 20BL173515, 20BL173513, 20BL173973, 20BL170147, 20BL170148, 20BL170149, 20BL170150, 20BL170151, 20BL170152, 20BL170153, 20BL170063, 20BL170062, 20BL170061, 20BL170059, 20BL170058 Additional groundwater monitoring licences held
Native vegetation approval	EPBC 2005/2309, EPBC 2015/7431

Table 3. General data on Wilpinjong Coal Mine

Wilpinjong Coal Mine

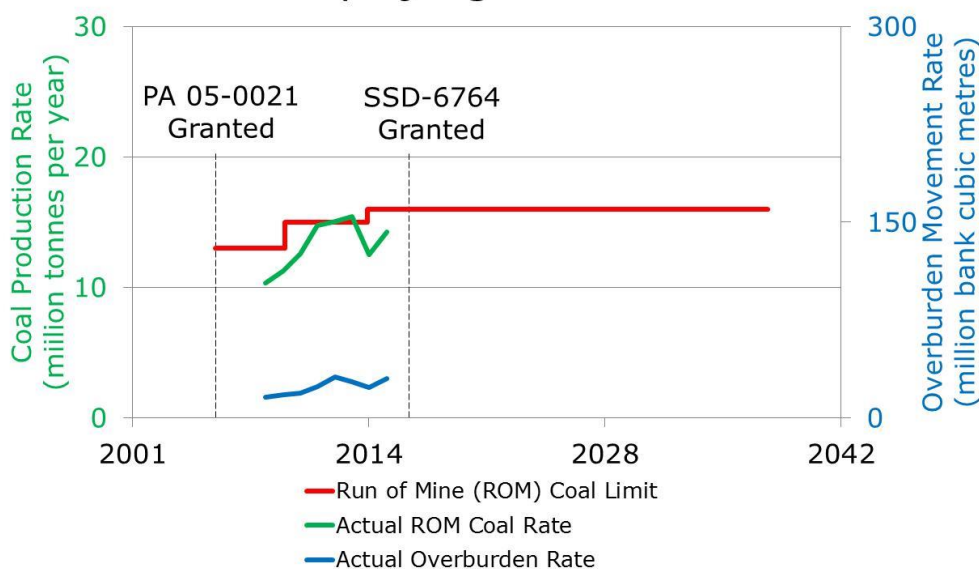


Figure 5. Timeline for Wilpinjong Coal Mine

Dust

Predicted dust impacts

- Project approvals are based on predicted dust impacts. Once operational, projects must monitor dust to demonstrate actual air quality levels.
- PM10 is dust in the air that is 10 micrometres or less in diameter.

Dust monitoring

- PM10 dust can be monitored using a high-volume air sampler (HVAS) or tapered element oscillating microbalance (TEOM).
- Monitoring results represent dust generation from all activities in the region including mining, agriculture, utilisation of unsealed roads and regional events such as dust storms and bushfires.

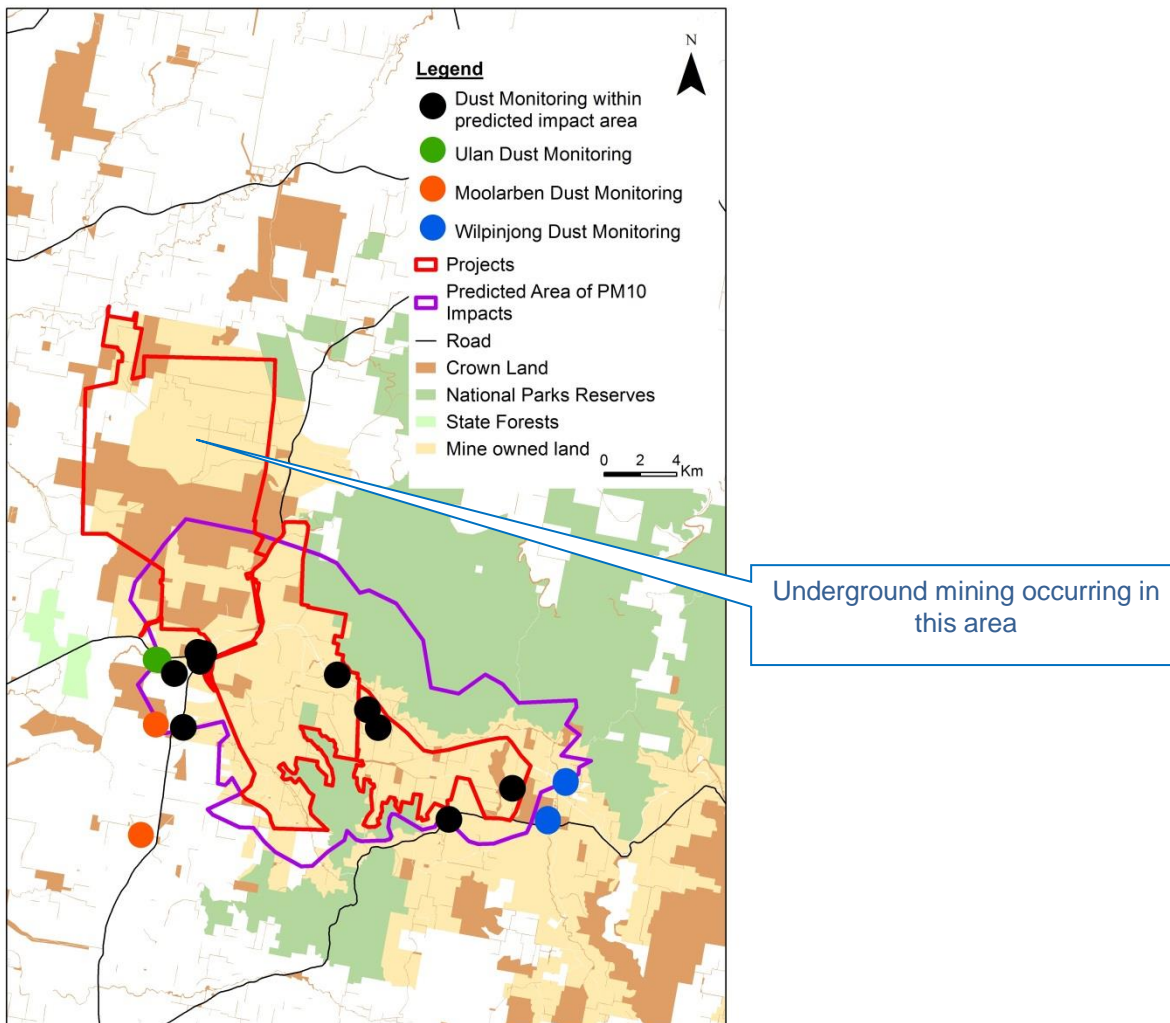


Figure 6. Dust monitoring locations

Dust levels

Australian air quality standards are detailed in the [National Environment Protection \(Ambient Air Quality\) Measure](#) (NEPM). The NEPM requires the NSW Government to monitor air quality and this helps to identify potential air quality problems.

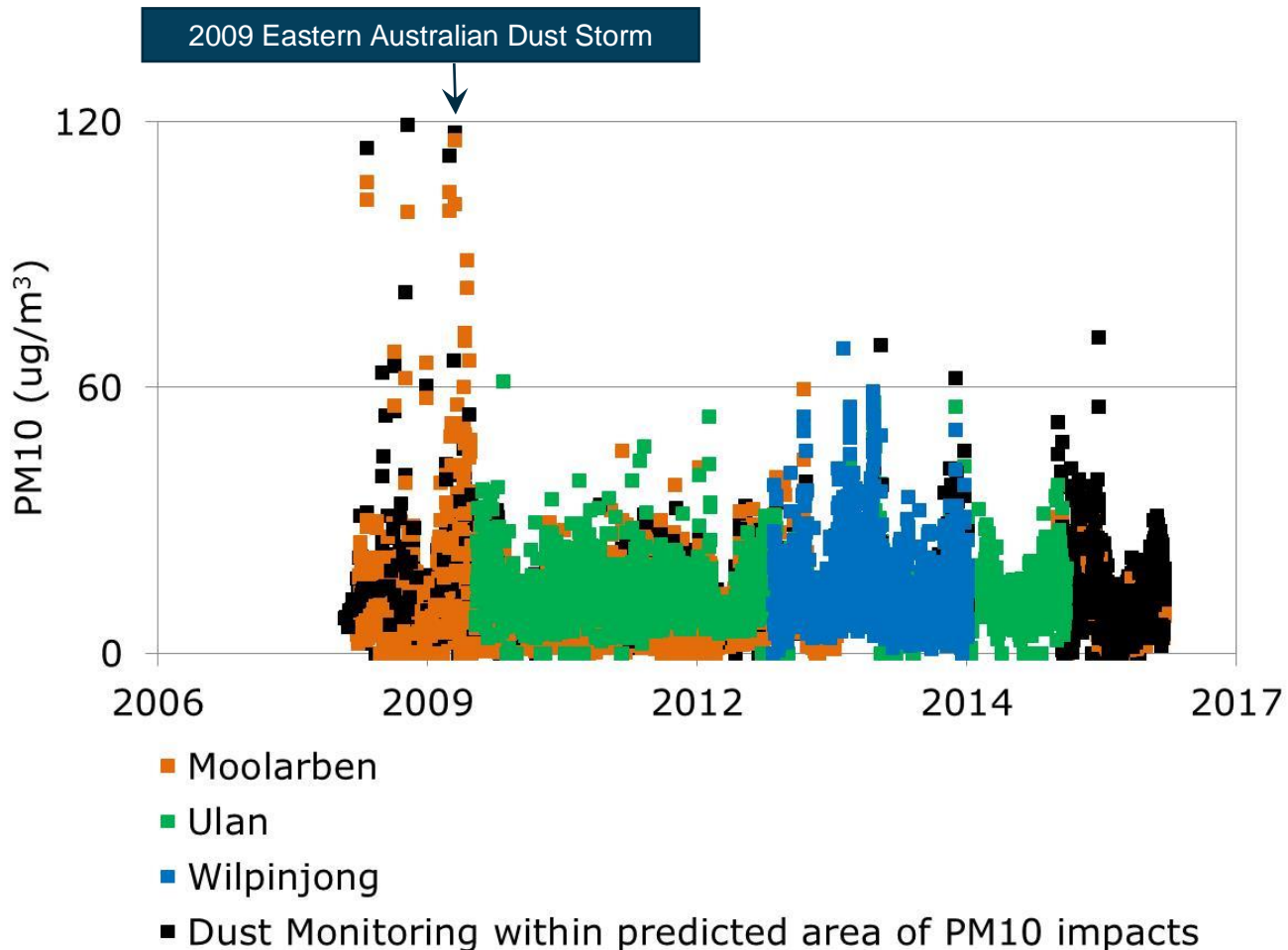


Figure 7. Dust levels from 2006 to 2017

Notes:

- Only raw data used.
- Each dot is the total dust for that day at that monitoring site.

Regional dust

- There are 18 company-owned air monitors (i.e. HVAS or TEOM) measuring PM10 dust levels in the Goulburn River region.
- The nearest NSW Government-operated dust monitors are located at Merriwa and Bathurst. There are no coal mines or coal seam gas projects near Merriwa or Bathurst.

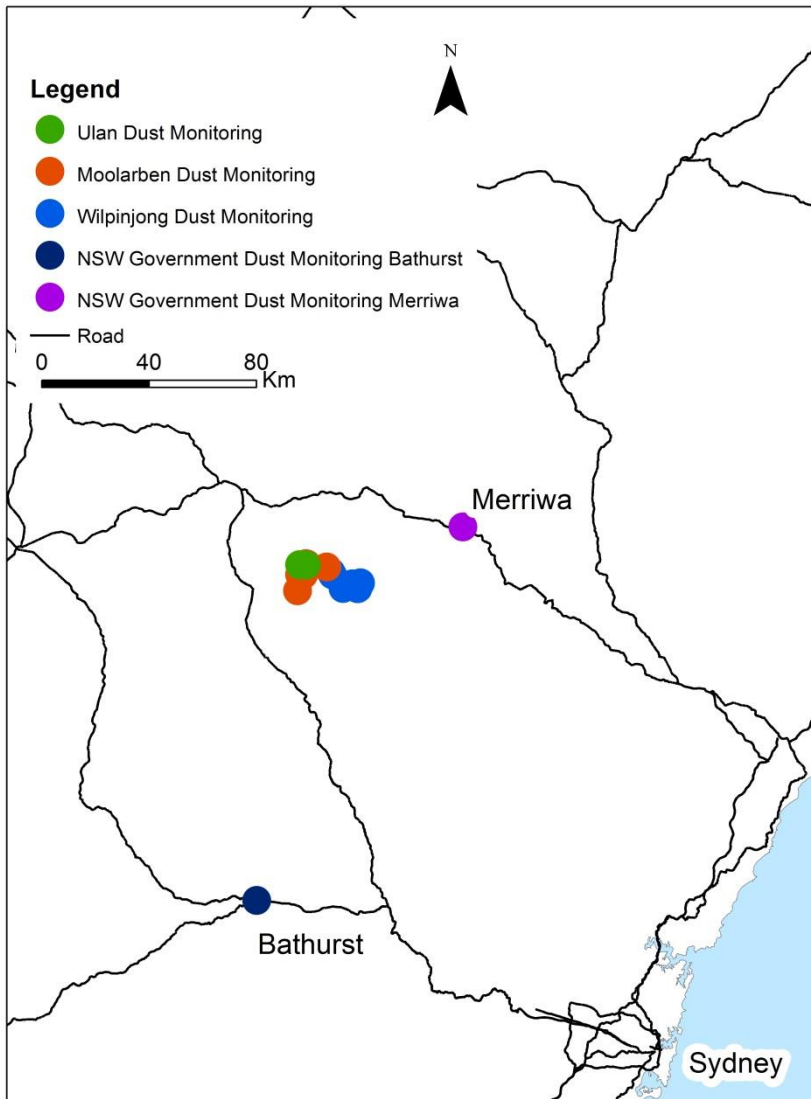


Figure 8. Dust monitoring sites in the Goulburn River region

Long-term dust trends

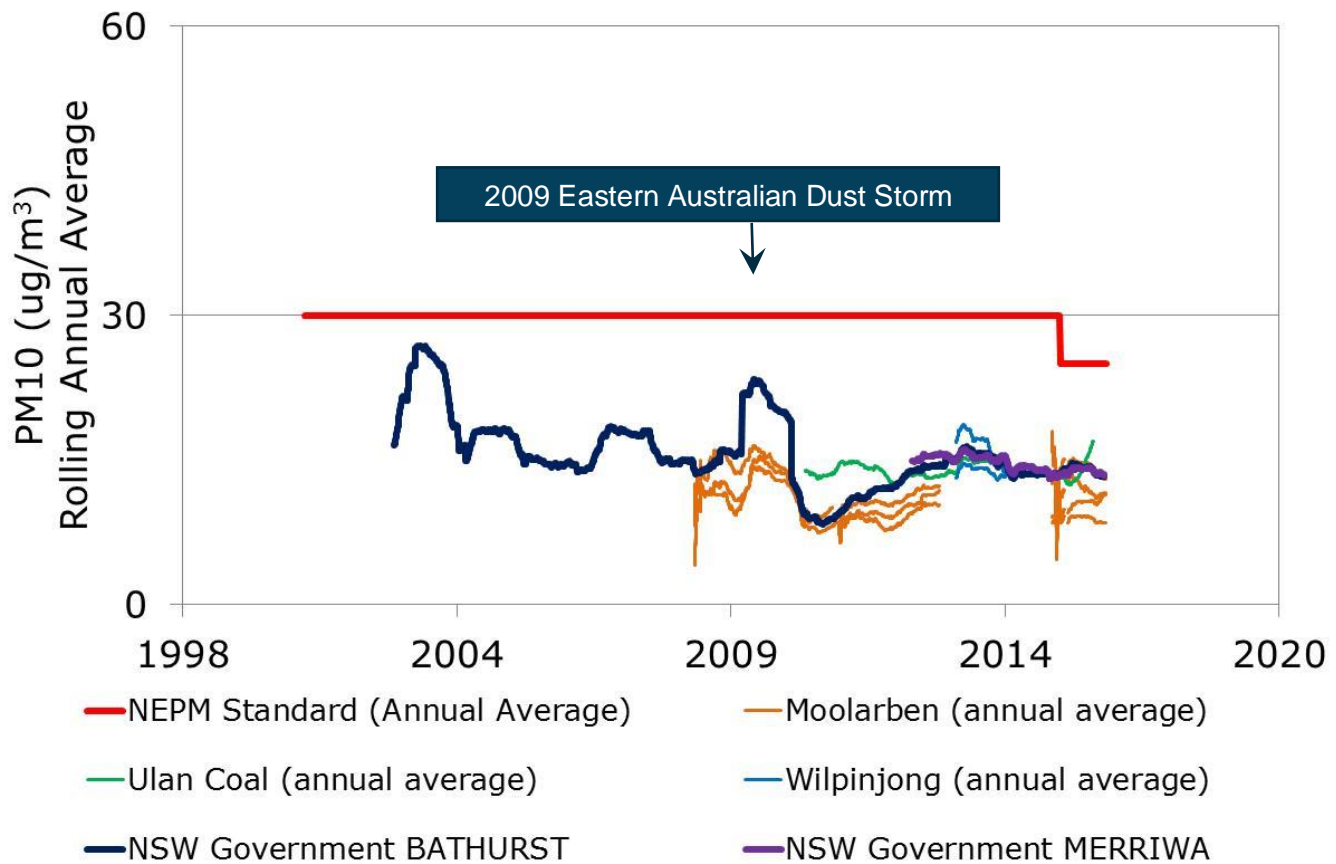


Figure 9. Rolling annual average dust trends in the Goulburn River region, 1998 to 2020

Notes:

- The rolling annual average is used to understand long-term dust trends.
- Australian air quality standards are detailed in the [National Environment Protection \(Ambient Air Quality\) Measure](#) (NEPM). The NEPM requires the NSW Government to monitor air quality, and this helps to identify potential air quality problems.

Noise

Predicted noise impacts

- Noise from operations may sometimes be audible at nearby residences.
- Project approvals and environment protection licences set noise limits and these apply at private residences.

Noise monitoring

- Some operations carry out both attended and unattended (continuous real-time) monitoring for noise.
- Attended monitoring results are used to determine compliance with limits as the contribution noise from the operation can be determined with the necessary level of certainty.
- Noise results often need to be analysed to establish the contribution the project has made to the total noise recorded at that site.
- Weather affects noise propagation and must be monitored in conjunction with noise.

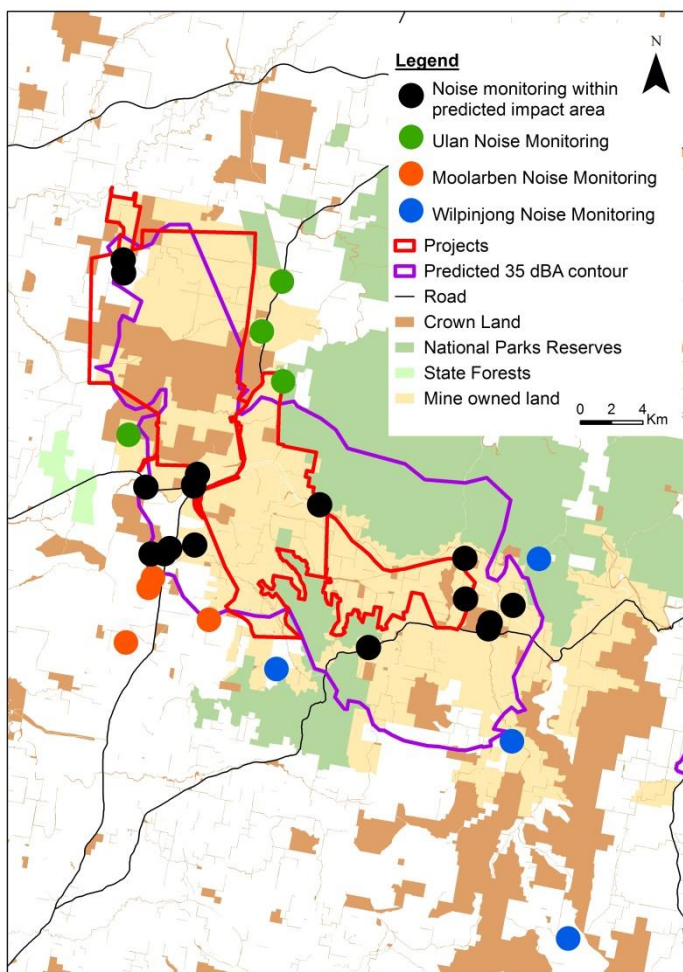


Figure 10. Noise monitoring locations

Noise levels from projects

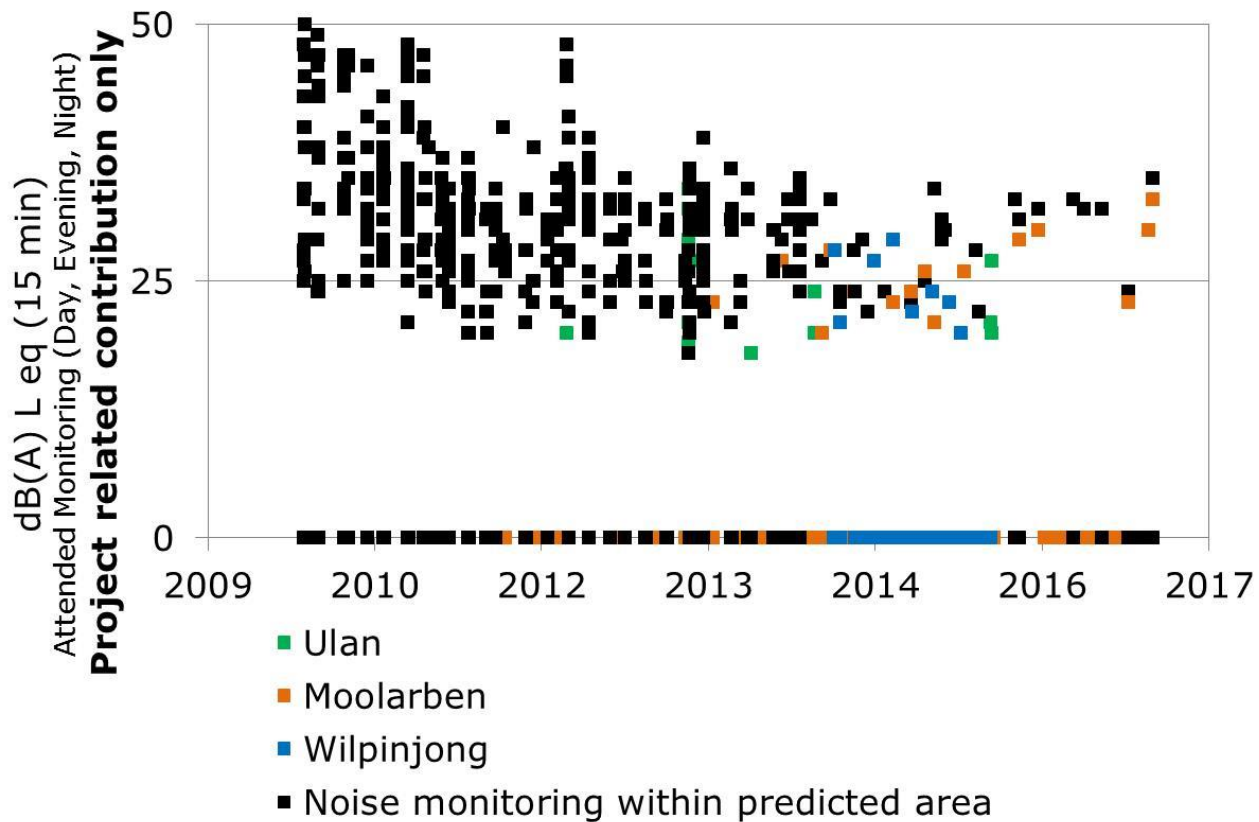


Figure 11. Noise levels from 2009 to 2017

Notes:

- The [NSW Industrial Noise Policy](#) is aimed at assessing noise from industrial noise sources. The NSW Government uses this policy when setting statutory limits.
- Each dot is a noise monitoring sampling event.

Blast (noise and vibration)

Blasting

- Blasting is used in open cut mining to break up rock for excavation.
- Blasting releases energy that causes overpressure (noise) and ground vibration that radiates outwards from the immediate blast location with levels diminishing over distance.

Blast monitoring

- Blasting is monitored as it may cause annoyance to people or structural damage to nearby buildings or other culturally significant items.
- Weather affects blasting impacts and must be considered and monitored in conjunction with blasting.

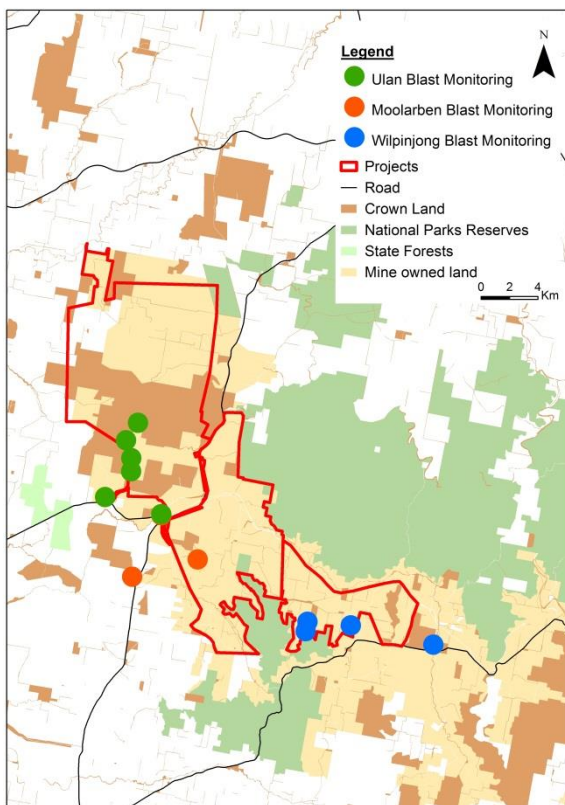


Figure 12. Blast monitoring locations

Item	Ulan	Moolarben	Wilpinjong
Period	2016	Oct 2009–Dec 2014	Jan 2013–Dec 2015
Number of blasts	5	430	403

Table 4. Number of blasts at each project site

Ground vibration and noise recorded during blasts

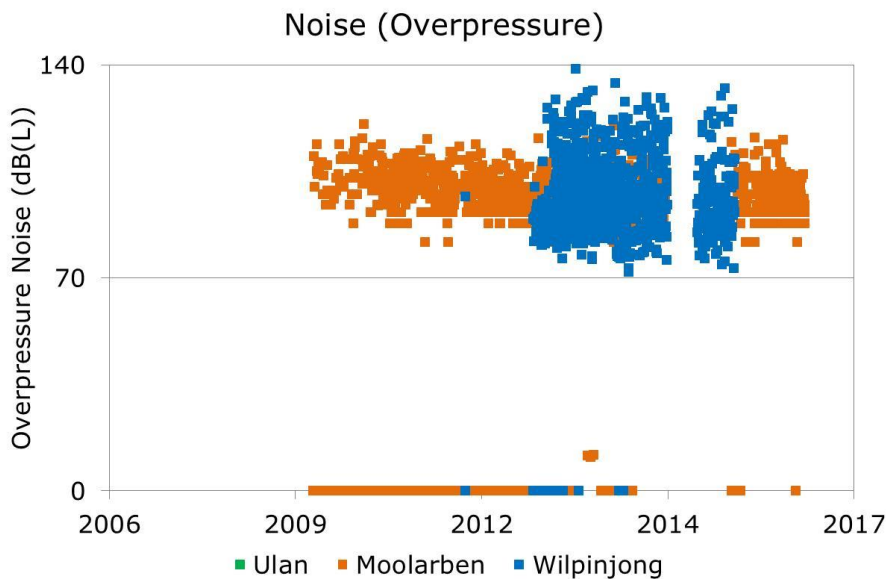


Figure 13. Noise from blasting from 2006 to 2017

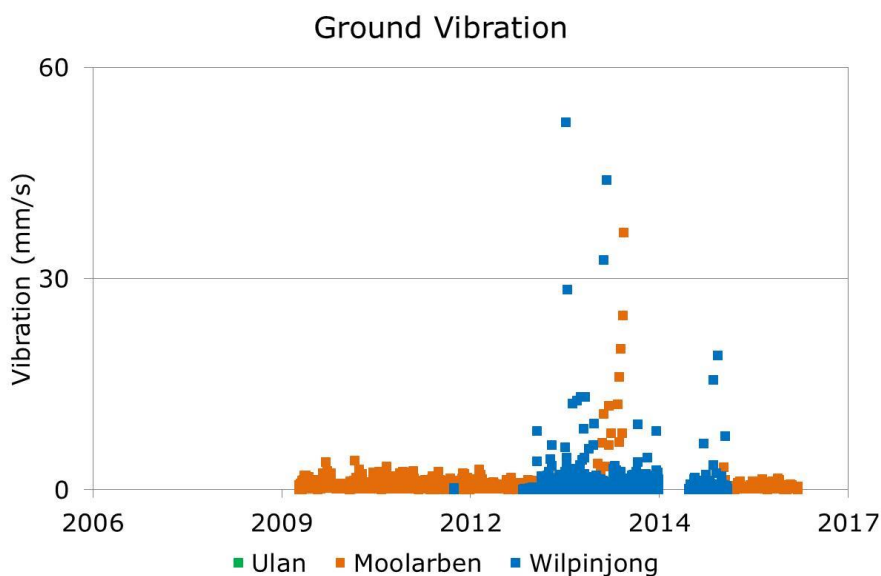


Figure 14. Ground vibration from blasting from 2006 to 2017

Notes:

- Each dot in the graphs above represents a blast event.
- Australian blasting limits are detailed in the [Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration](#) (Sept 1990). Limits are aimed to minimise annoyance to people and therefore considerably lower than the levels that could damage competent structures.

Water

Water licencing

- Water licences are required before water is taken from either off-site surface water sources (e.g. active pumping from a river) or groundwater sources (e.g. groundwater seeping into open cut voids).
- Water management is undertaken in accordance with approved water management plans and the project approval.
- Water is used on site for dust suppression, mining operations and construction.
- Environment Protection Licence conditions must be met prior to discharging any water from the site into the surrounding environment.

Water Monitoring

- Projects are required to have a network of water bores to monitor impacts from projects.
- The NSW Government monitors surface water and groundwater in the North West region of NSW.

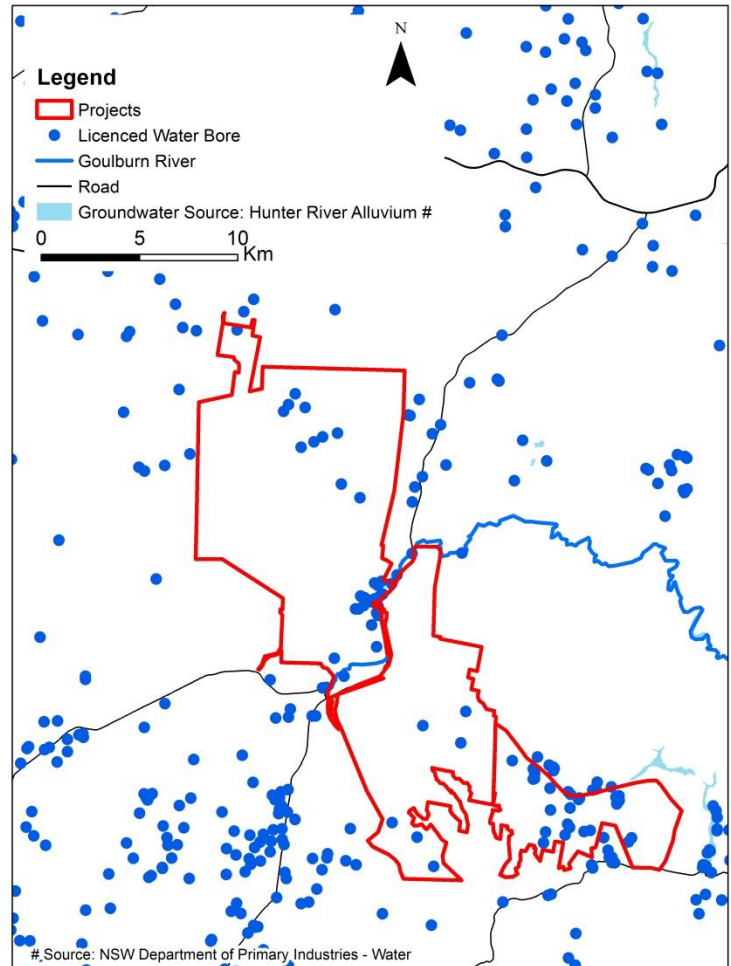


Figure 15. Licenced water bore locations

Water take

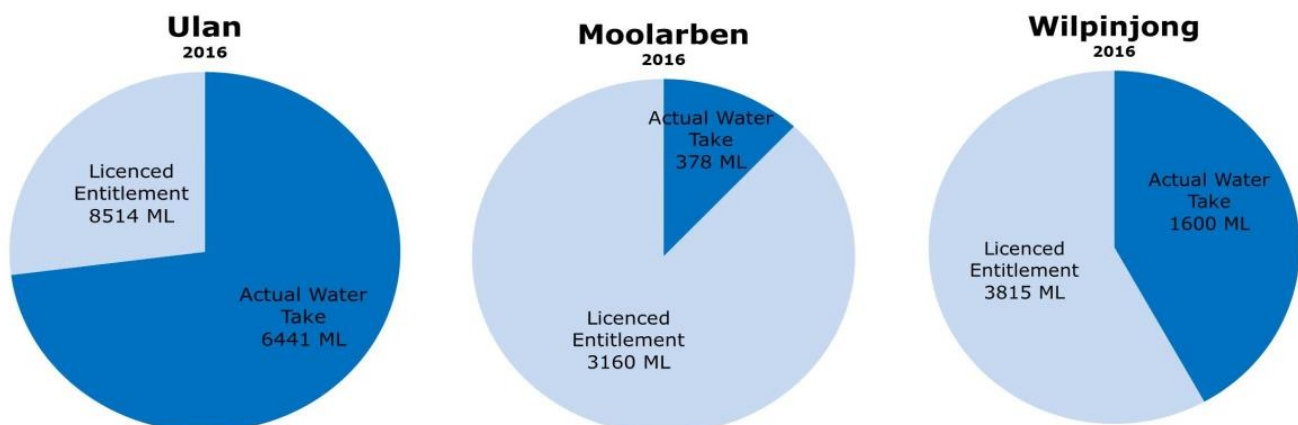


Figure 16. Licenced entitlement for each project

Company monitoring of groundwater levels

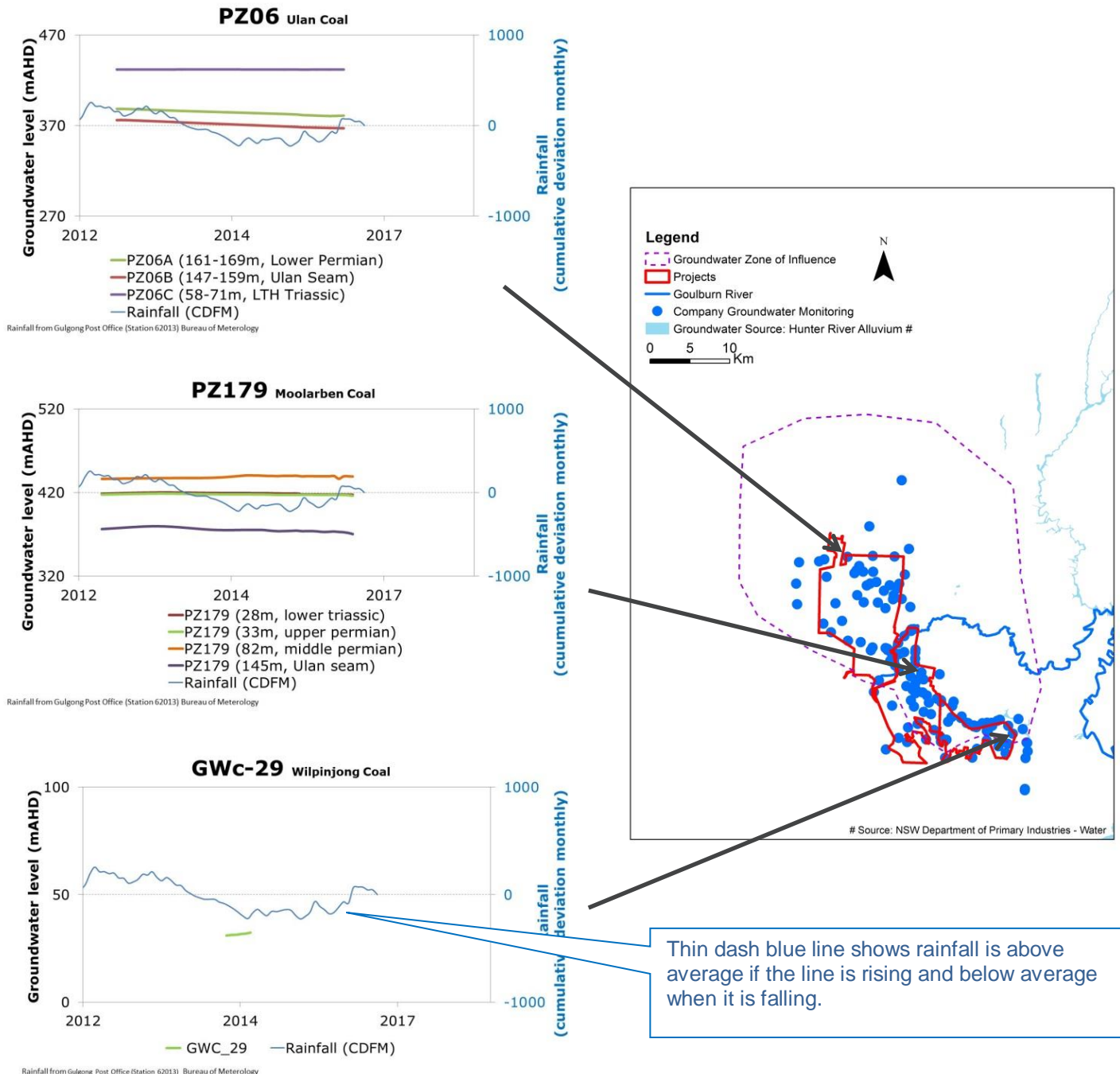


Figure 17. Three examples of company groundwater monitoring

Notes:

- This document only includes a few examples for groundwater monitoring sites.
- Visit company websites for more information on groundwater monitoring.

NSW Government monitoring of groundwater levels

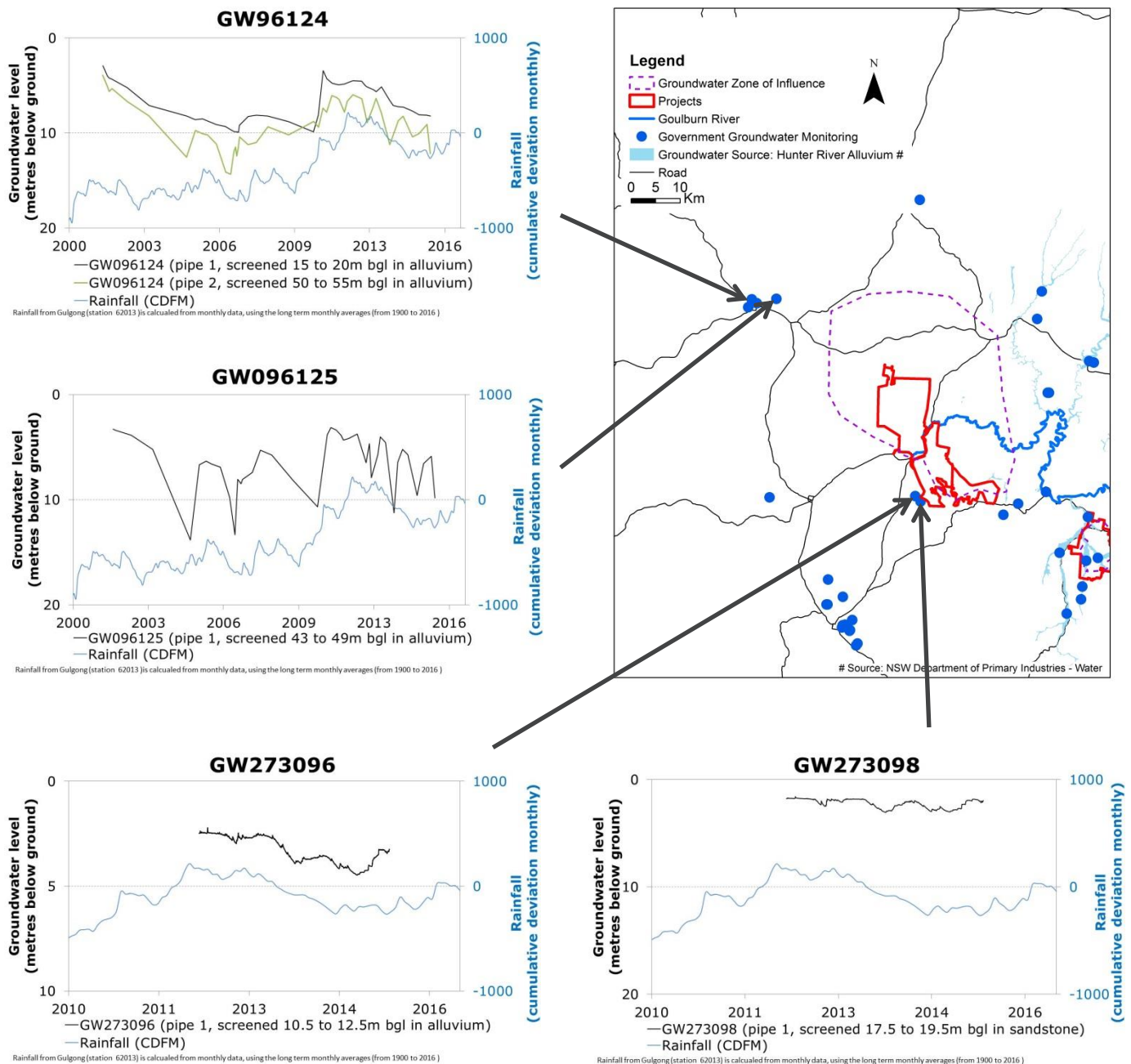


Figure 18. Four examples of NSW Government groundwater monitoring

NSW Groundwater Baseline Project

The Groundwater Baseline Project gathers data on water rights, licencing and use across the Gunnedah region. For more detailed information, visit www.industry.nsw.gov.au and search for 'Land and Water Commissioner'.

Rehabilitation

Rehabilitation requirement

- Project approvals are based on rehabilitation outcomes described within the project approval application.
- Rehabilitation activities must be progressively carried out during the life of a project.

Rehabilitation security

- A rehabilitation security is held against every project. The NSW Government can use the security to carry out rehabilitation activities if required. The security estimate is regularly reviewed.

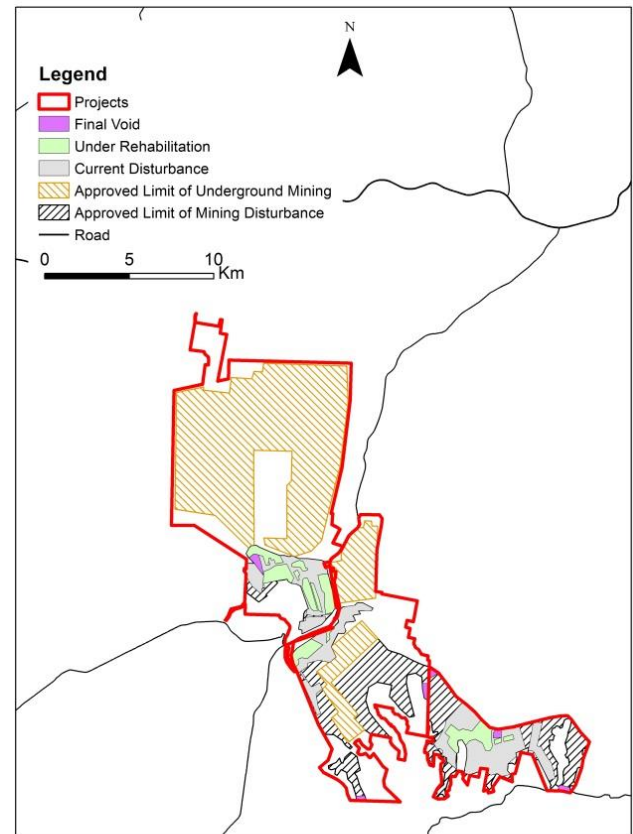


Figure 19. Rehabilitation areas of each project

Item	Ulan	Moolarben	Wilpinjong
Rehabilitation security held	\$86,614,000	\$36,104,000	\$48,685,000
Type of security(Cash or Bond)	Bank Guarantee Bond	Bank Guarantee Bond	Cash
Last reviewed	July 2016	Feb 2017	Oct 2016

Table 5. Rehabilitation details for each project

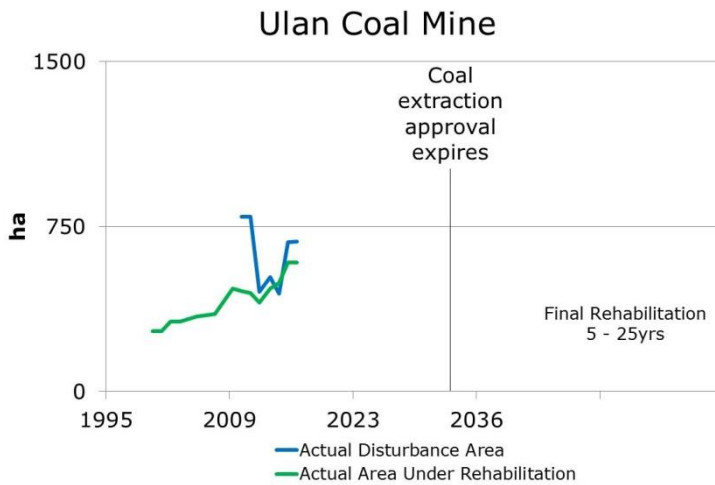


Figure 20. Rehabilitation timeline for Ulan

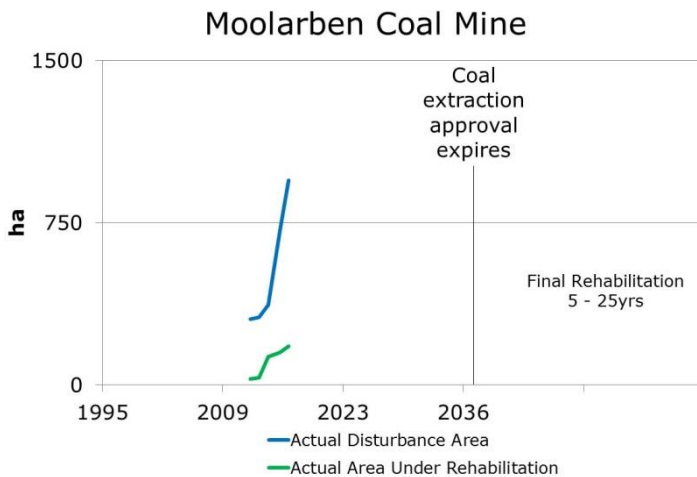


Figure 21. Rehabilitation timeline for Moolarben

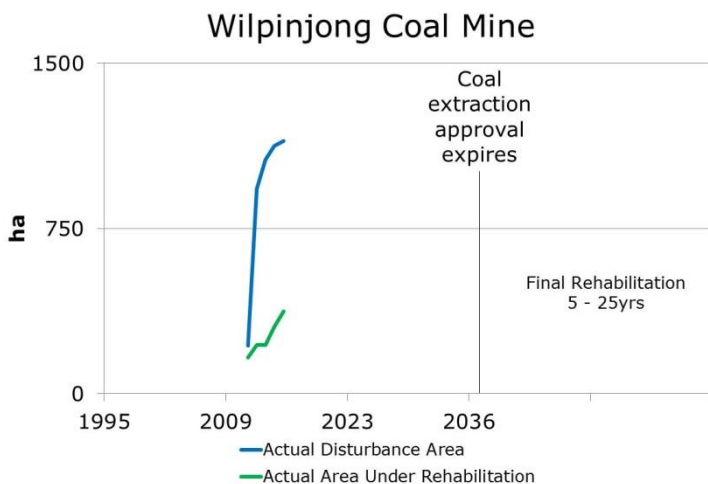


Figure 22. Rehabilitation timeline for Wilpinjong

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