

### Leard Forest 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:**  
[commissioner@landandwater.nsw.gov.au](mailto:commissioner@landandwater.nsw.gov.au)  
 or (02) 6391 3429.

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

- **Maules Creek Coal Mine**  
[www.whitehavencoal.com.au](http://www.whitehavencoal.com.au)
- **Boggabri Coal Mine**  
[www.idemitsu.com.au](http://www.idemitsu.com.au)
- **Tarrawonga Coal Mine**  
[www.whitehavencoal.com.au](http://www.whitehavencoal.com.au)

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

**Department of Planning and Environment (DPE)**  
[www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)

**Division of Resources and Geoscience (DRG)**  
[www.resourcesandenergy.nsw.gov.au](http://www.resourcesandenergy.nsw.gov.au)

**Environment Protection Authority (EPA)**  
[www.epa.nsw.gov.au](http://www.epa.nsw.gov.au)

**DPI Water** [www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

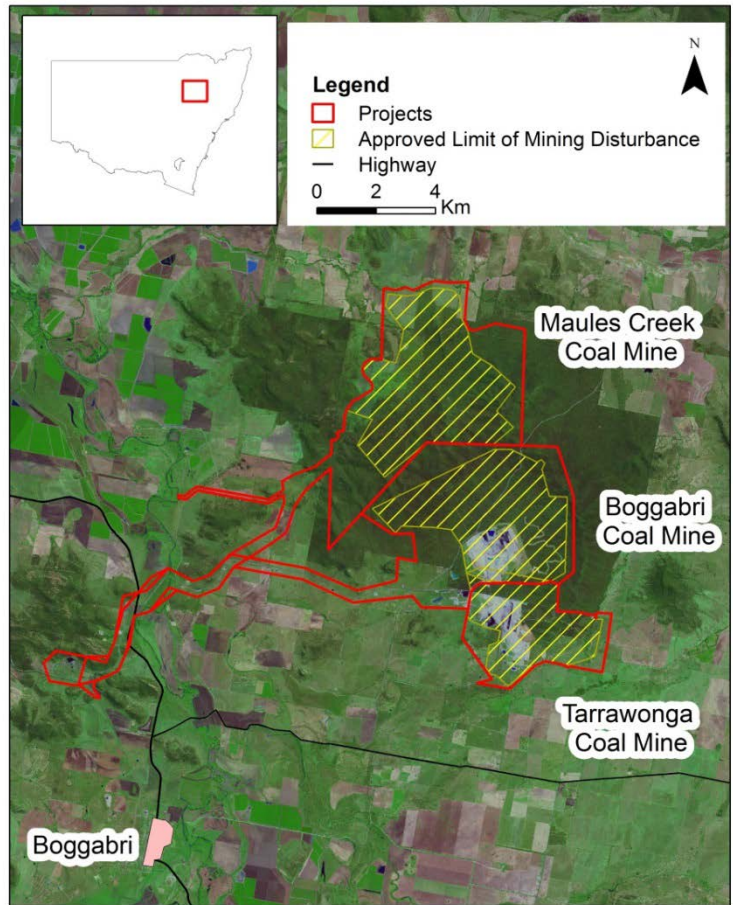


Figure 1. Map of Leard Forest Mining Precinct

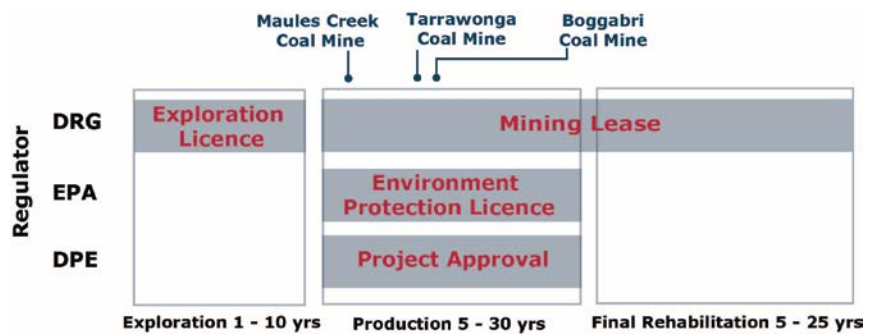


Figure 2. Indicative timeline for Leard Forest Mining Precinct

### Projects

#### Maules Creek Coal Mine

Item	Data
Type	Open cut coal mine
Rate of extraction limit	13 million tonnes of coal per year
Operator	Whitehaven Coal Limited
Commenced	2013
Local or State Government approval	State
Project approval	1990 (DA85/1819 - surrendered) 2012- 2034 (DA10_0138 - current), 3 modifications
Current applications for planning approval	0
Rights to mine	ML1719, ML1701, CL375
Environment Protection Licence	EPL20221 (from 2013 with 5 licence variations)
Water licences	Licensed to take and monitor surface water and groundwater
Native vegetation approval	EPBC 2010/5566

Table 1. General data on Maules Creek Coal Mine

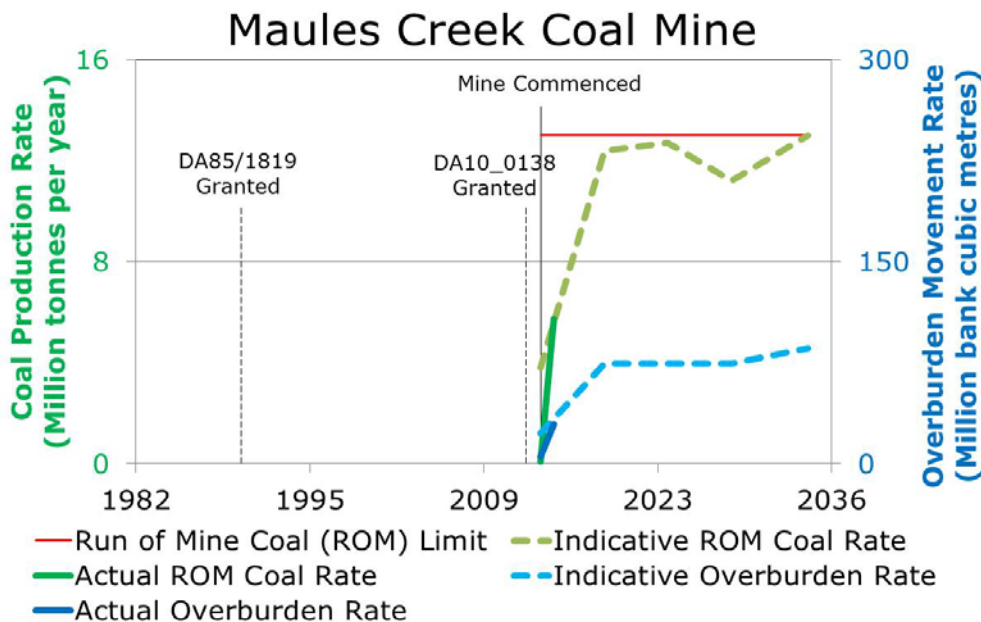


Figure 3. Timeline for Maules Creek Coal Mine

### Boggabri Coal Mine

Item	Data
Type	Open cut coal mine
Rate of extraction limit	8.6 million tonnes of coal per year
Operator	Boggabri Coal Pty Limited
Commenced	2006
Local or State Government approval	State
Project approval	1989 (DA36/88 and DA79/1443 - surrendered) 2012- 2033 (09_0182 - current), 5 modifications
Current applications for planning approval	0
Rights to mine	CL368 (MLA464 - seeking new mining title)
Environment Protection Licence	EPL12407, EPL20404 (from 2006 and 2014 with various licence variations)
Water licences	Licensed to take and monitor surface water and groundwater
Native vegetation approval	EPBC 2009/2556

Table 2. General data on Boggabri Coal Mine

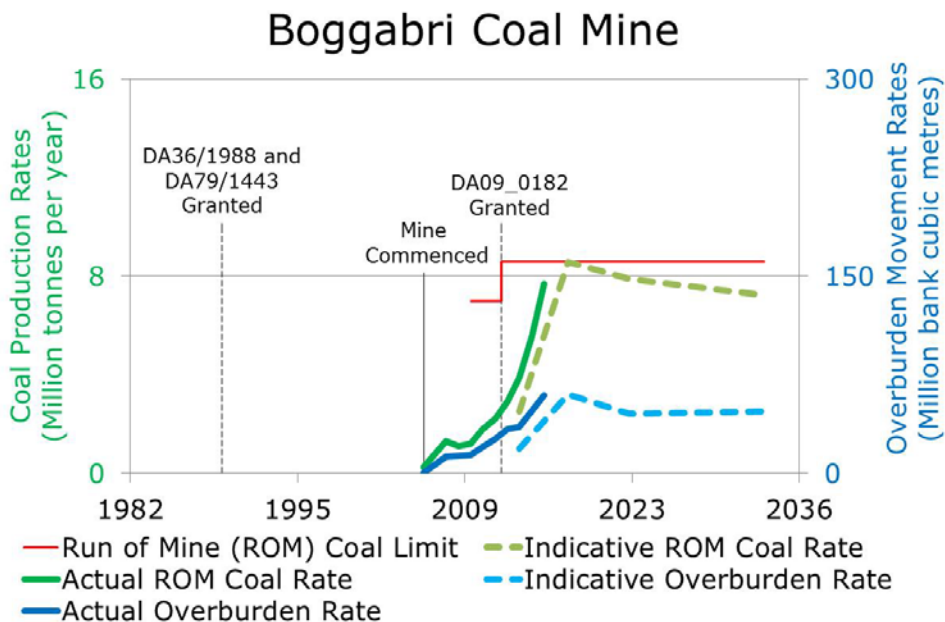


Figure 4. Timeline for Boggabri Coal Mine

### Tarrawonga Coal Mine

Item	Data
Formerly	East Boggabri Coal Mine
Type	Open cut coal mine
Rate of extraction limit	3 million tonnes of coal per year
Operator	Whitehaven Coal Limited
Commenced	2006
Local or State Government approval	State
Project approval	2005 (DA88-4-2005 - surrendered) 2013- 2030 (11_0047 - current), 3 modifications
Current applications for planning approval	1
Rights to mine	ML1693, ML1579, ML1685
Environment Protection Licence	EPL12365 (from 2006 with 12 licence variations)
Water licences	Licensed to take and monitor surface water and groundwater
Native vegetation approval	EPBC 2011/5923

Table 3. General data on Tarrawonga Coal Mine

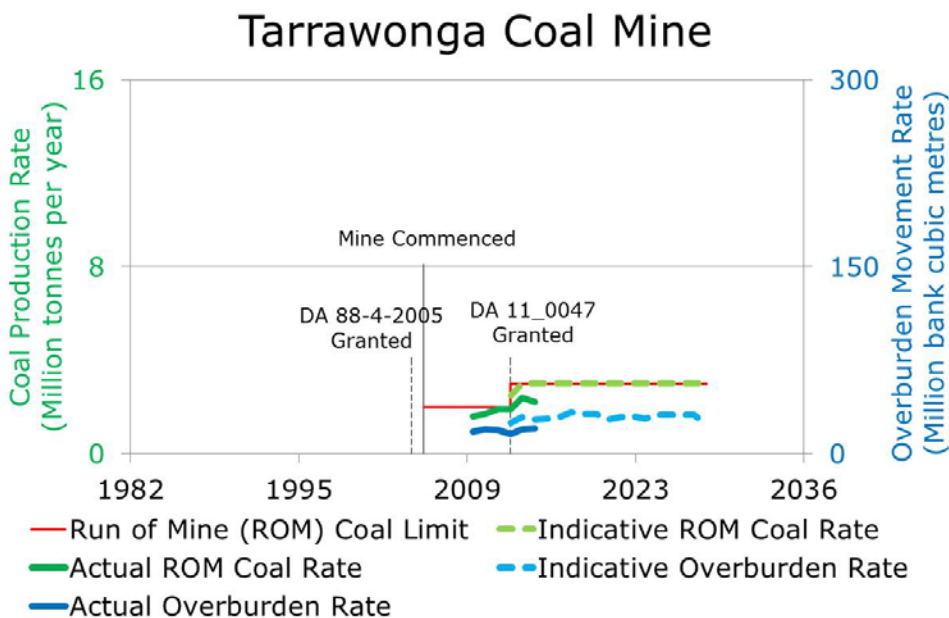


Figure 5. Timeline for Tarrawonga Coal Mine

## 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.

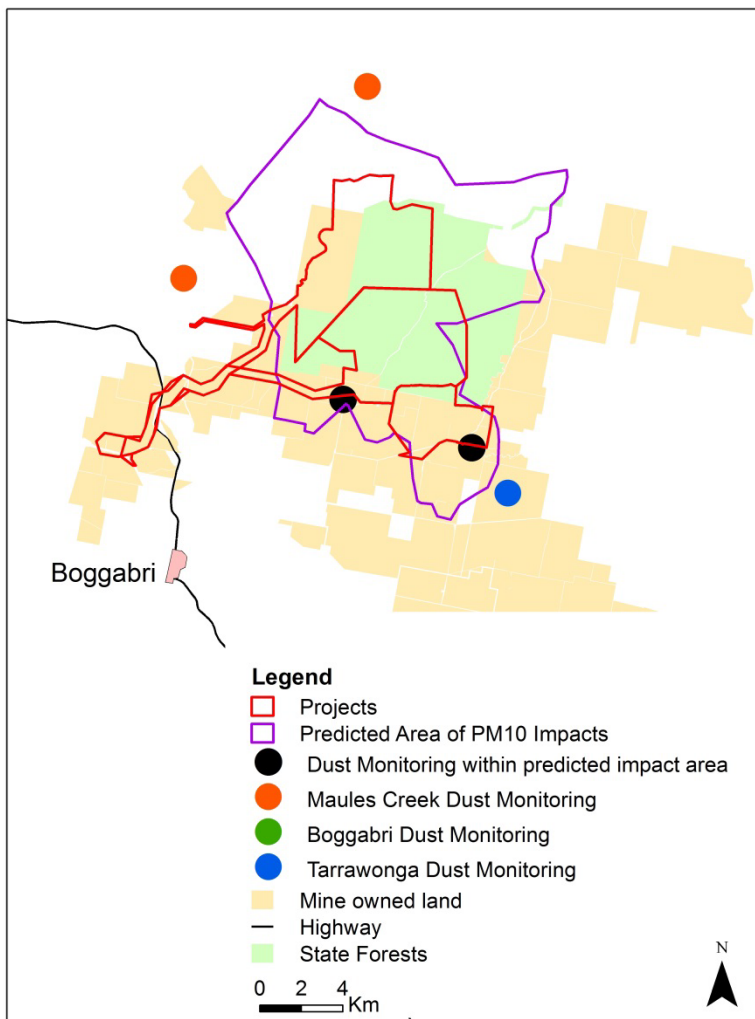


Figure 6. Dust monitoring locations

### 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.

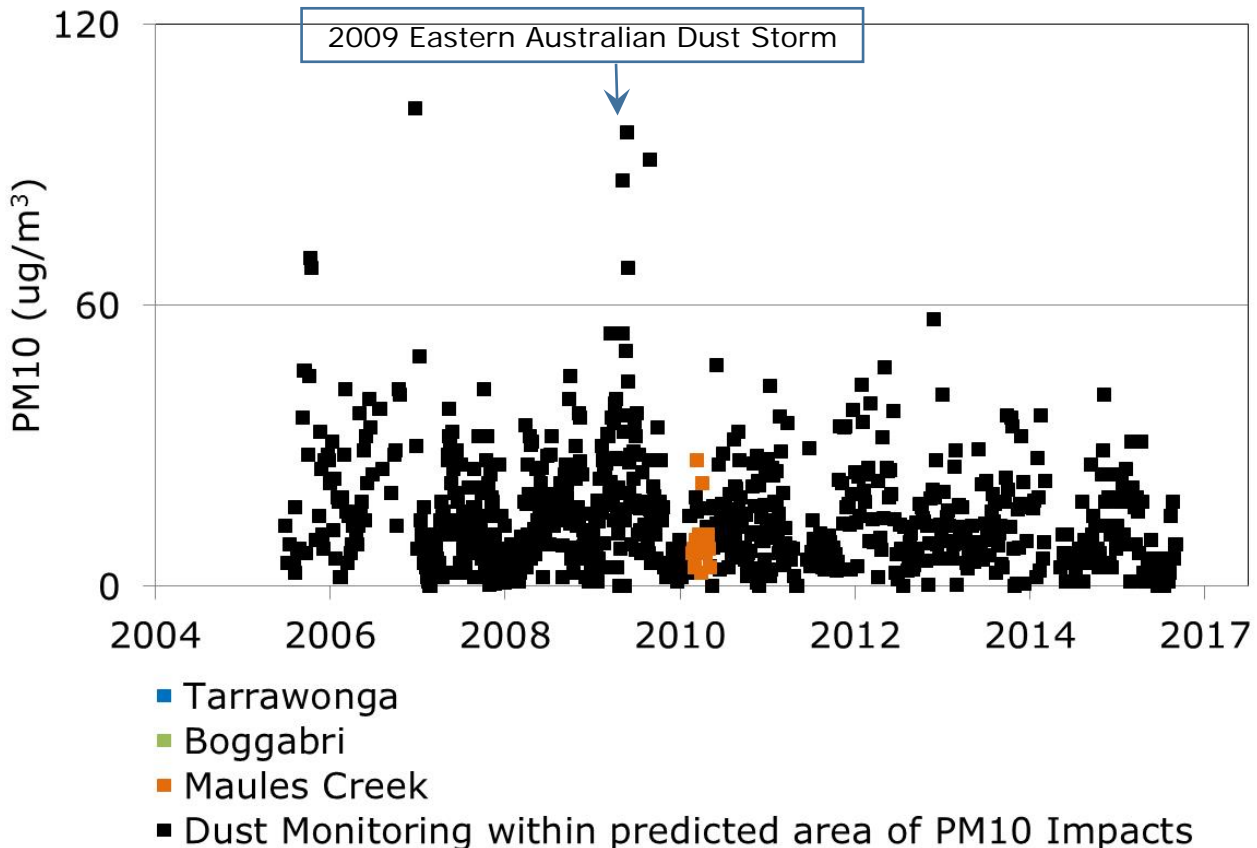


Figure 7. Dust levels from 2004 to 2017

#### Notes:

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

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing, April 2017. However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the Department of Industry or the user's independent advisor.

## 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 level of certainty necessary.
- 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.

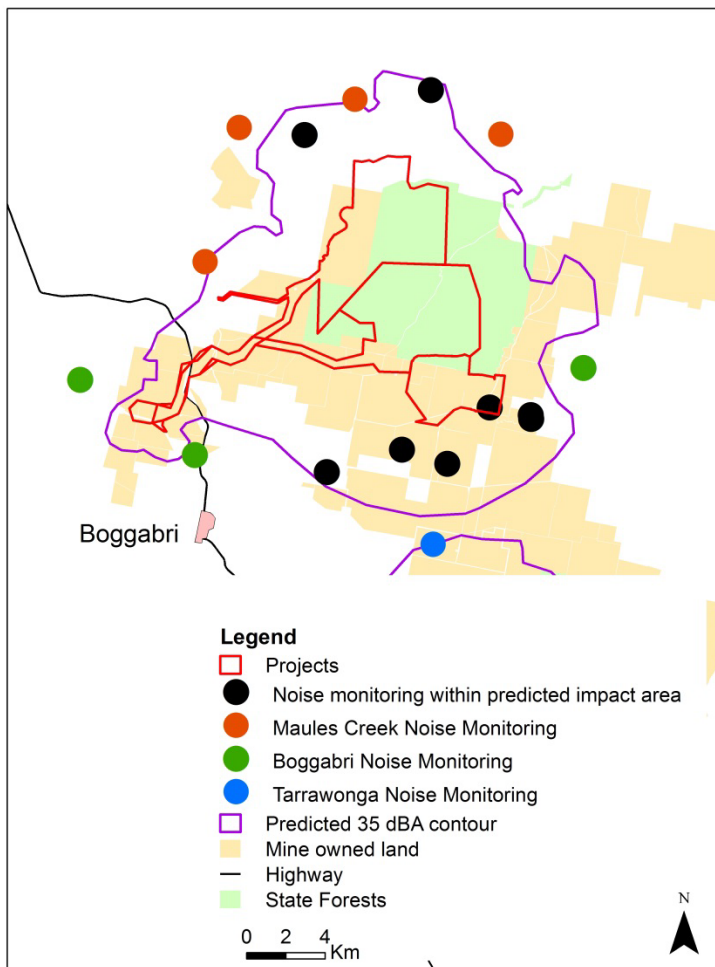


Figure 8. Noise monitoring locations

### Noise levels from projects

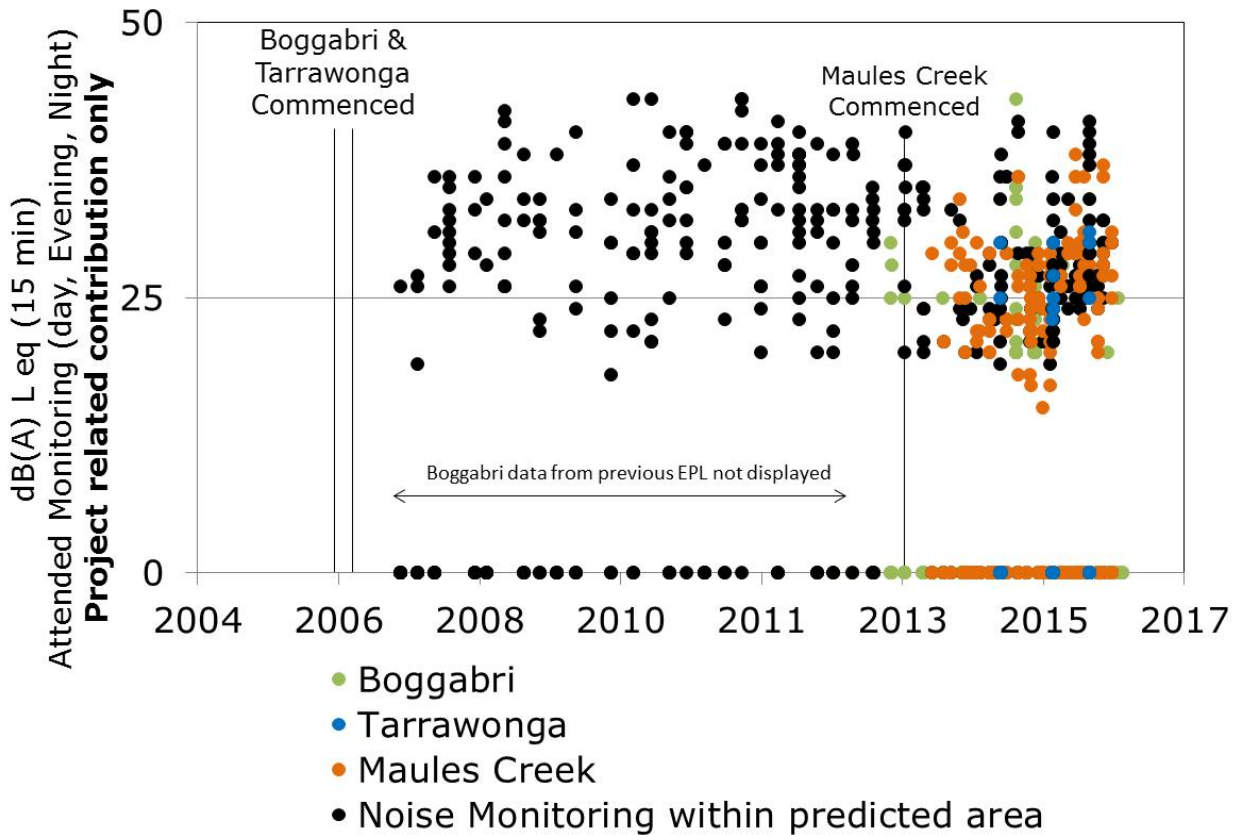


Figure 9. Noise levels from 2004 to 2017

#### 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.

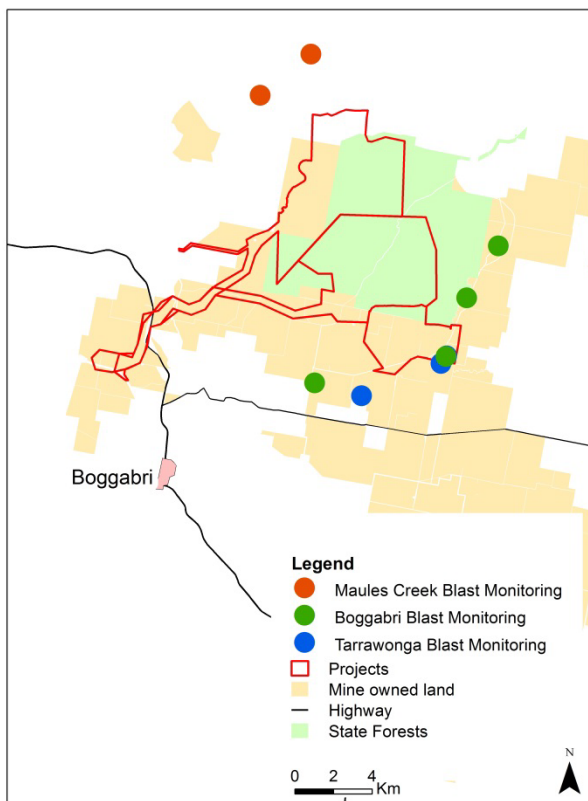


Figure 10. Blast monitoring locations

	Maules Creek	Boggabri	Tarrawonga
<b>Period</b>	2014–Dec 2015	2006–Aug 2016	2006–Apr 2015
<b>Number of blasts</b>	210	726	566

Table 4. Number of blasts at each project site

## Ground vibration and noise recorded during blasts

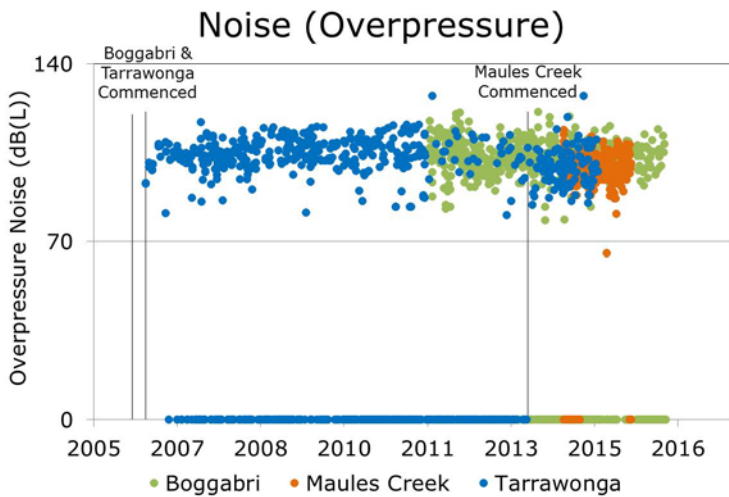


Figure 11. Noise from blasting from 2005 to 2016

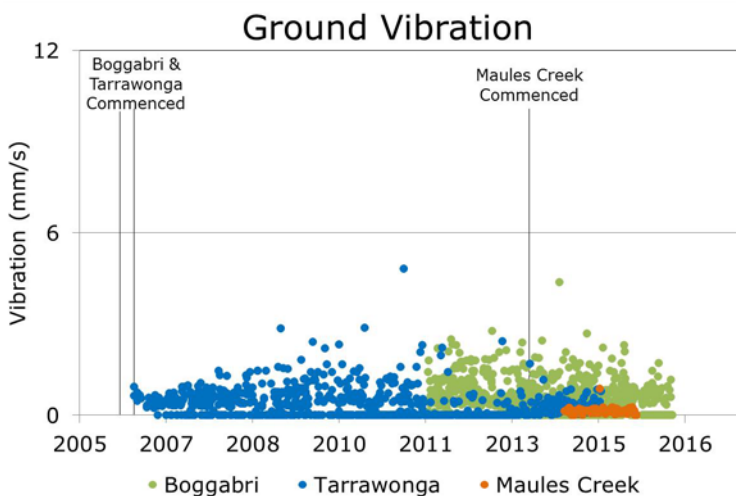


Figure 12. Ground vibration from blasting from 2005 to 2016

### Note:

- 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 are required to 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.

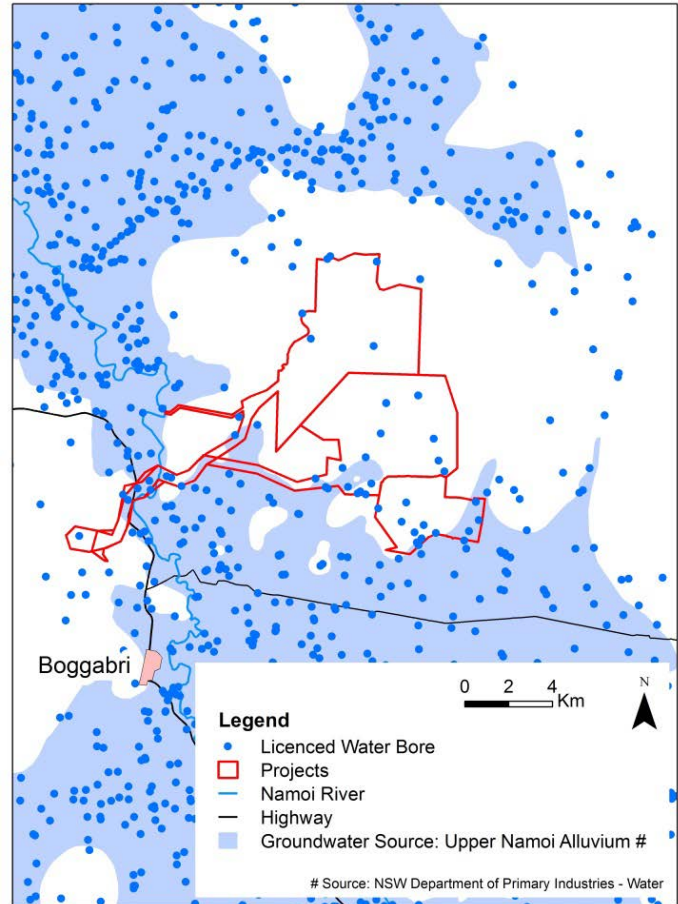


Figure 13. Licenced water bore locations

### Groundwater (Aquifer)

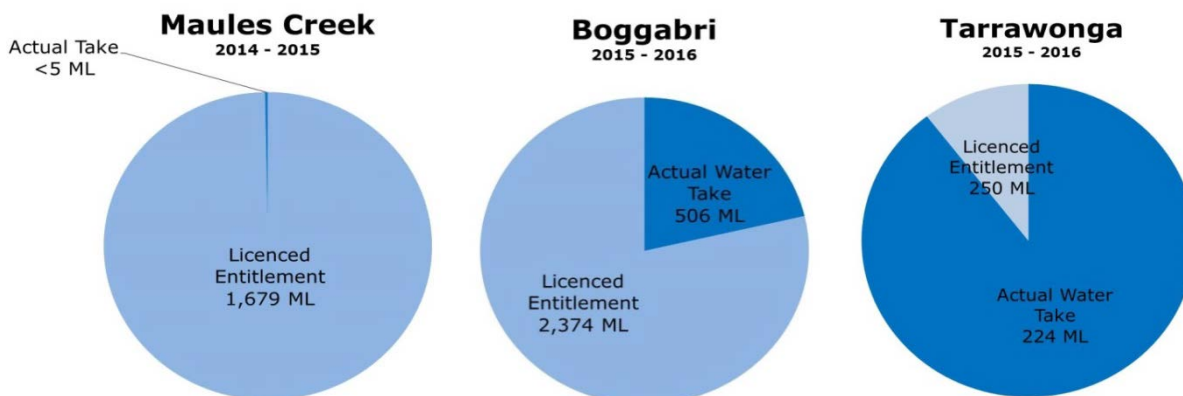


Figure 14. Licenced entitlement for each project

### Regulated River Water (High Security)

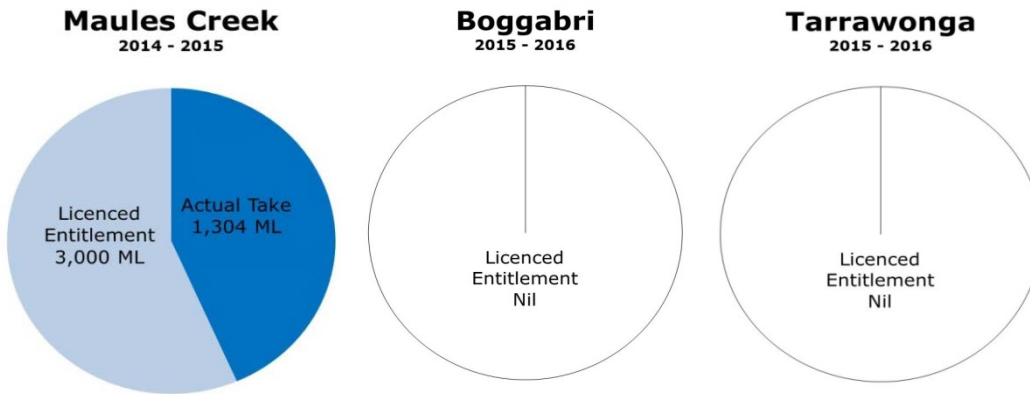


Figure 15. Licenced entitlement for each project

### Regulated River Water (General Security)

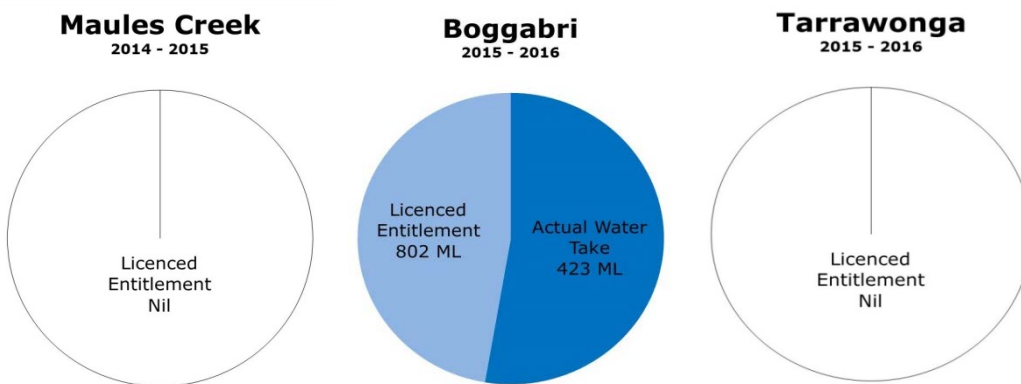


Figure 16. Licenced entitlement for each project

### Regulated River Water (Supplementary Water)

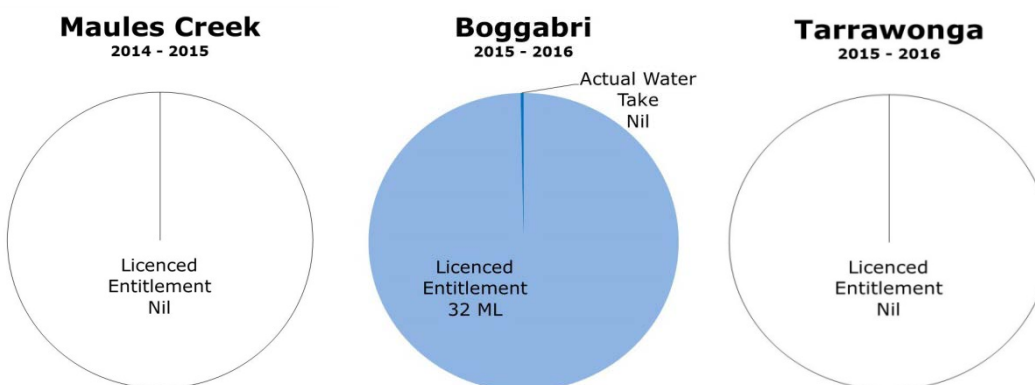


Figure 17. Licenced entitlement for each project

### Company monitoring of groundwater levels

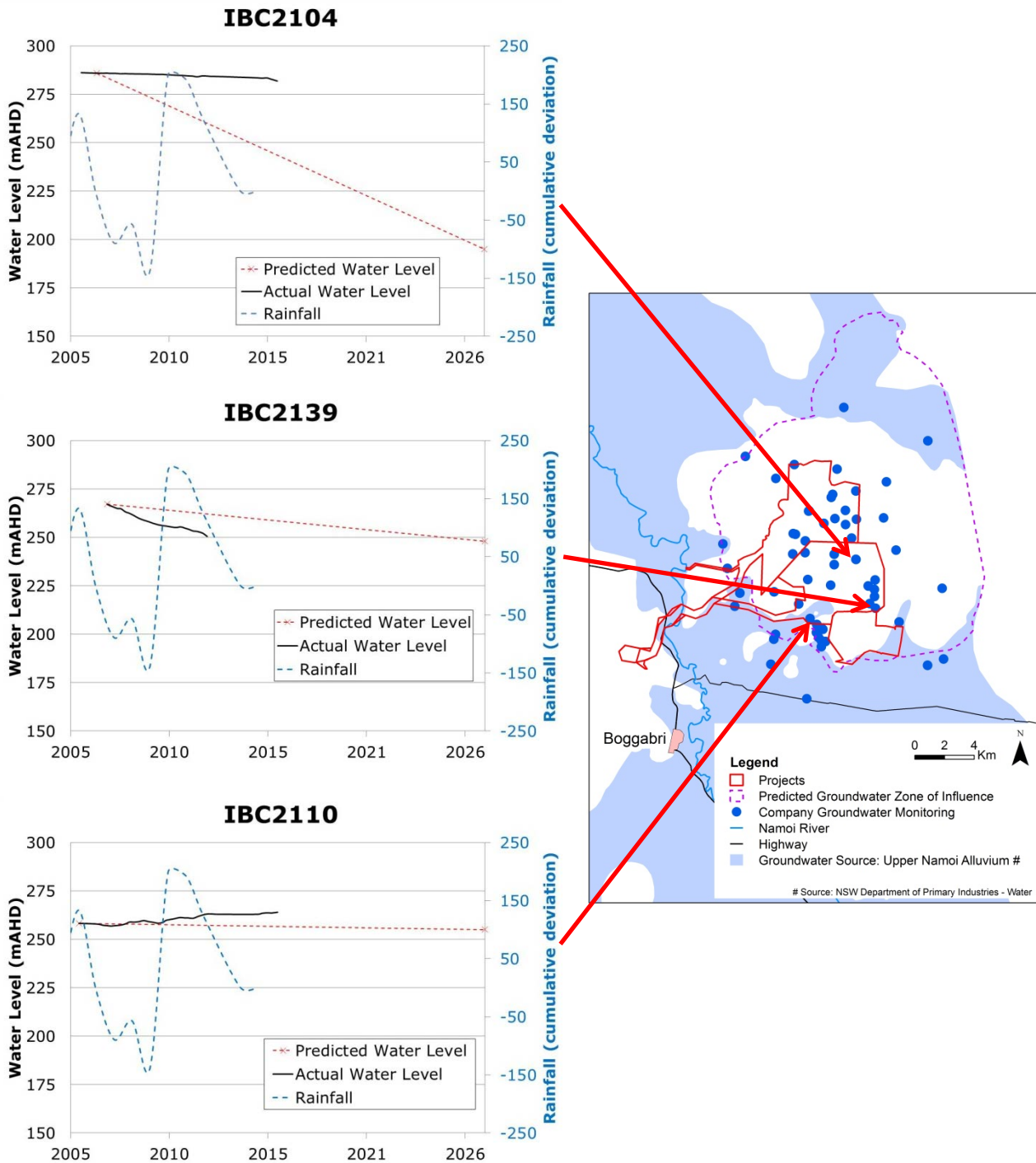
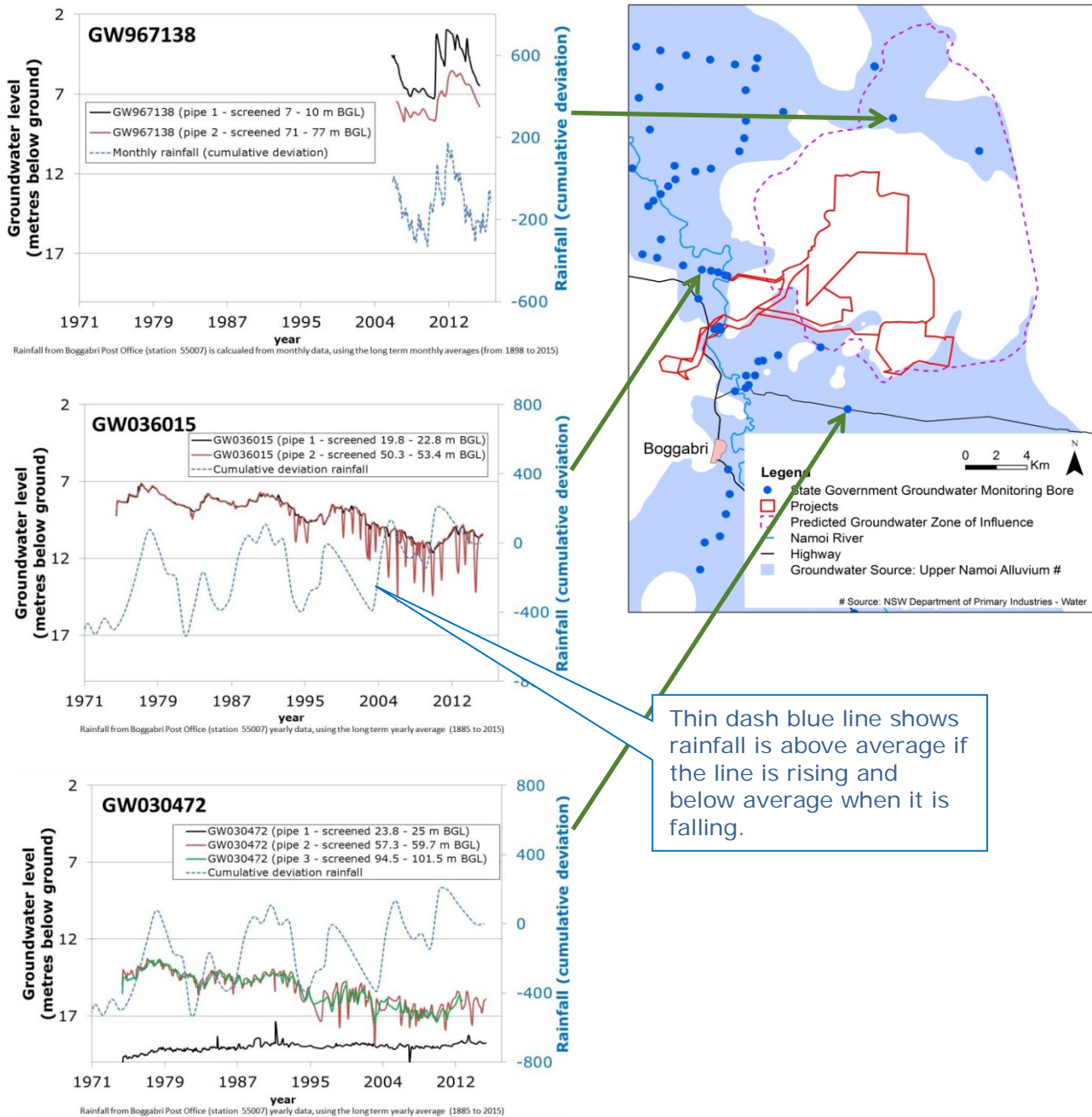


Figure 18. Three examples of company groundwater monitoring

#### Note:

- 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



Thin dash blue line shows rainfall is above average if the line is rising and below average when it is falling.

Figure 19. Three 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](http://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 are required to 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.

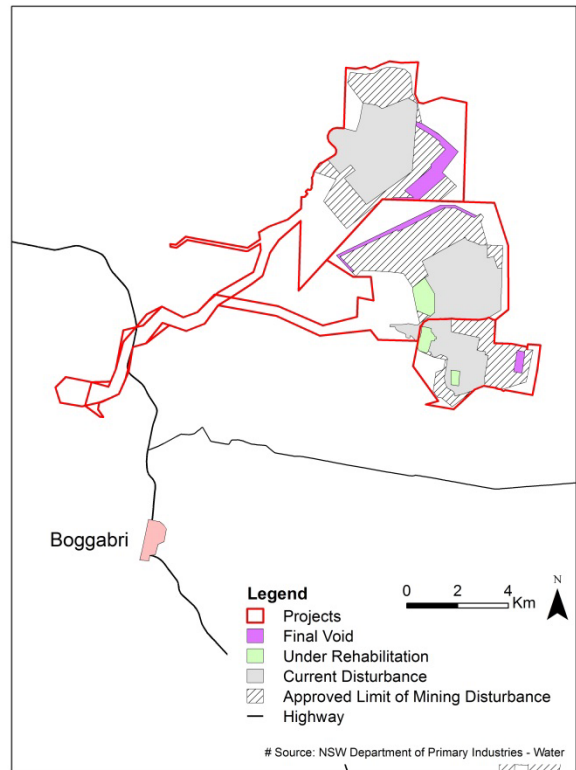


Figure 20. Rehabilitation areas of each project

	Maules Creek	Boggabri	Tarrawonga
<b>Rehabilitation security held</b>	\$79,142,000	\$39,540,000	\$21,150,000
<b>Type of security (Cash or Bond)</b>	Bank Guarantee Bond	Bank Guarantee Bond	Bank Guarantee Bond
<b>Last reviewed</b>	July 2016	Dec 2015	June 2016

Table 5. Rehabilitation details for each project

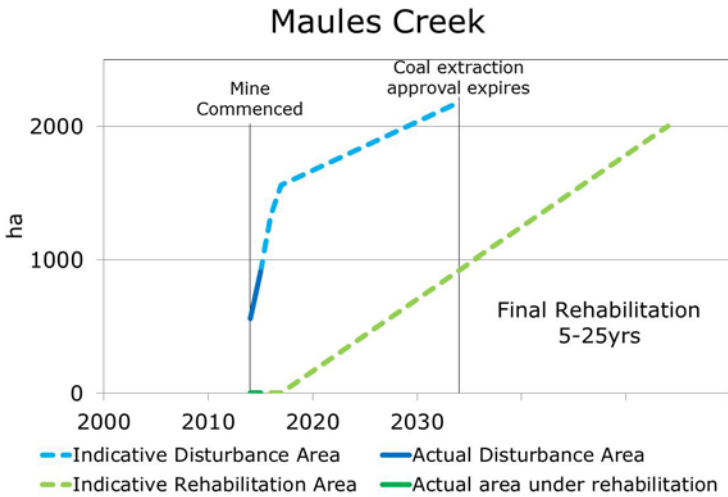


Figure 21. Rehabilitation timeline for Maules Creek

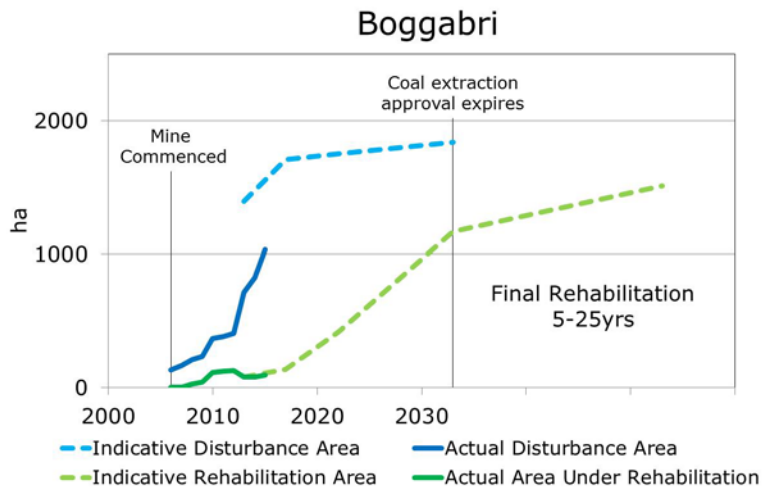


Figure 22. Rehabilitation timeline for Boggabri

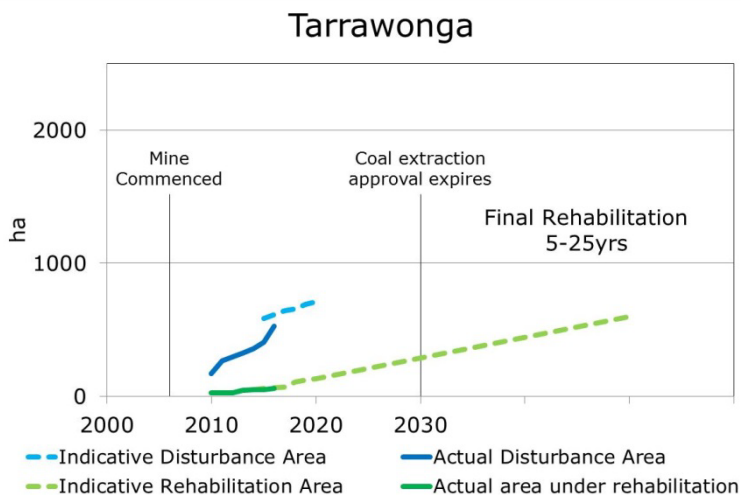


Figure 23. Rehabilitation timeline for Tarrawonga