Werris Creek Mining Precinct

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

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

Werris Creek Coal Mine
www.whitehavencoal.com.au

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

NSW Department of Planning and Environment
www.planning.nsw.gov.au

Division of Resources and Geoscience
www.resourcesandenergy.nsw.gov.au

NSW Environment Protection Authority
www.epa.nsw.gov.au

NSW DPI Water
www.dpi.nsw.gov.au

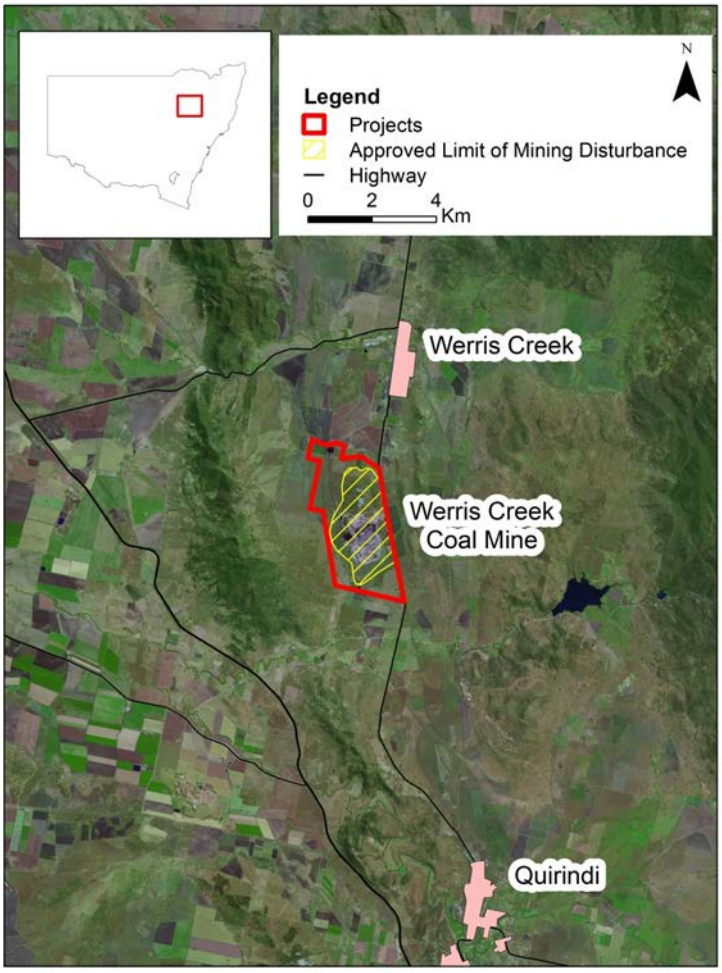

Figure 1. Map of Werris Creek Mining Precinct

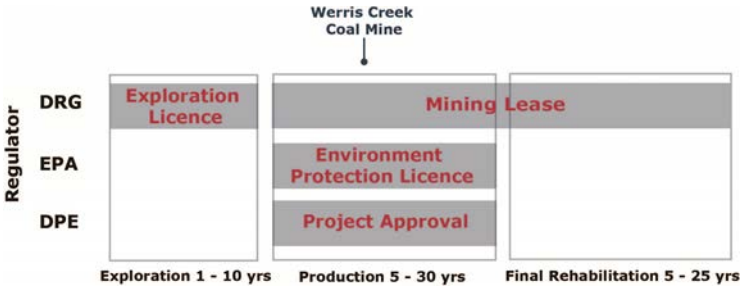

Figure 2. Indicative timeline for Werris Creek Mining Precinct

Projects

Table 1. General data on Werris Creek Coal Mine

Item	Data
Type	Open-cut coal mine
Rate of extraction limit	2.5 million tonnes of coal per year
Operator	Whitehaven Coal Limited
Commenced	2005
Local or state government approval	State
Project approvals	2004 (DA172-7-2004—surrendered) 2011- 2032 (PA 10_0059—current), two modifications
Current applications for planning approvals	0
Rights to mine	ML1563
Environment Protection Licence	EPL12290 (from 2005 with various licence variations)
Water licences	Licenced to take and monitor surface water and groundwater
Native vegetation approval	EPBC 2010/5571

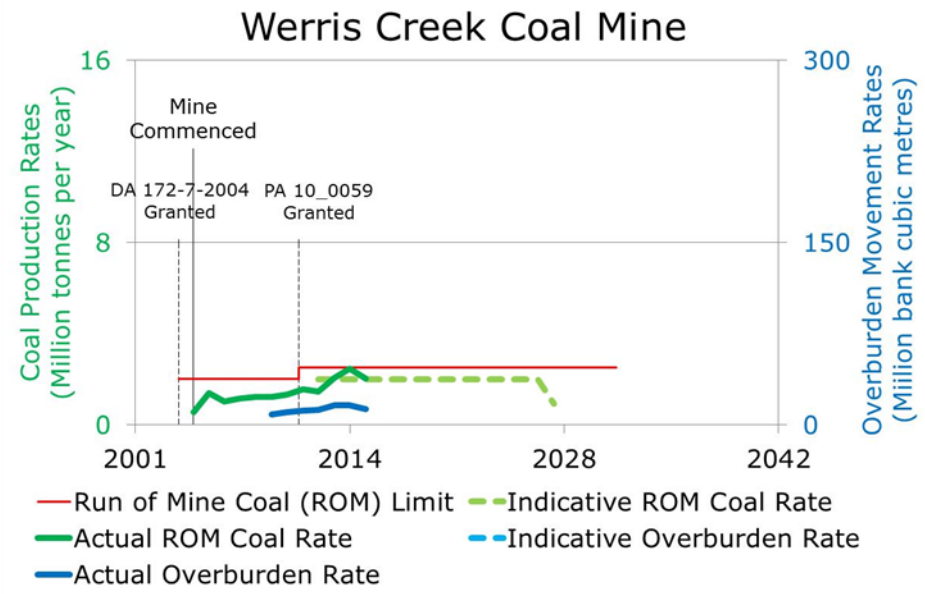

Figure 3. Timeline for Werris Creek Coal Mine

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.

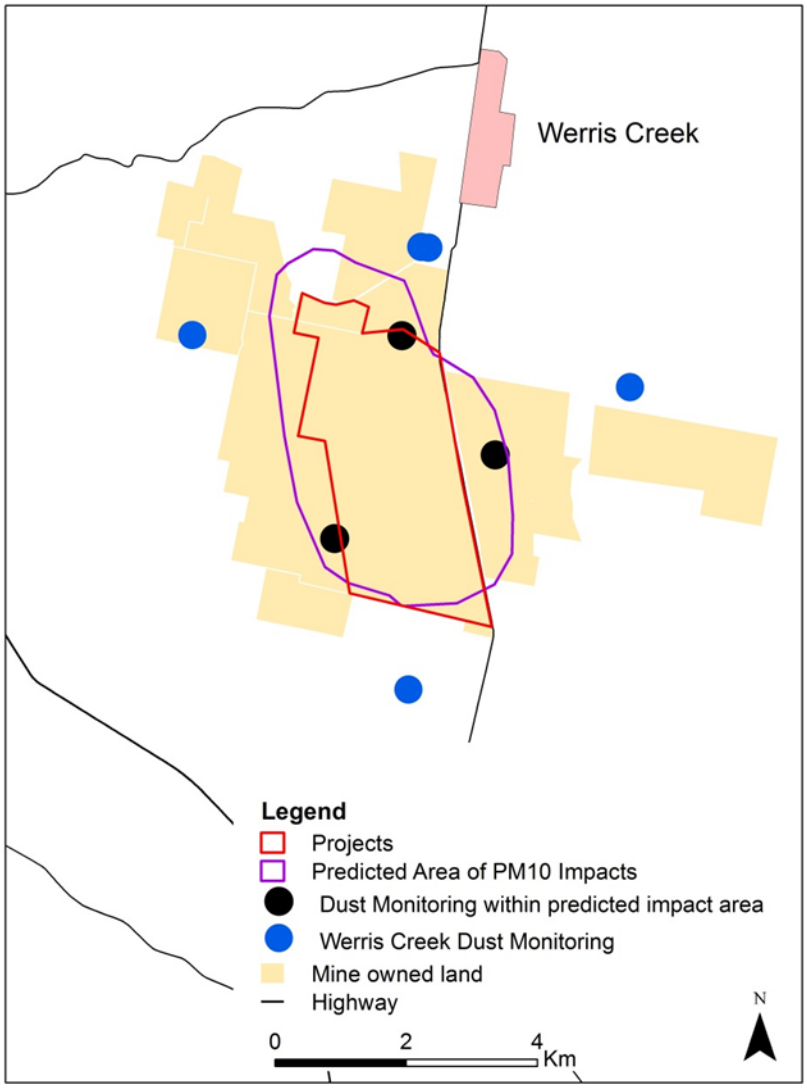

Figure 4. Dust monitoring locations

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.

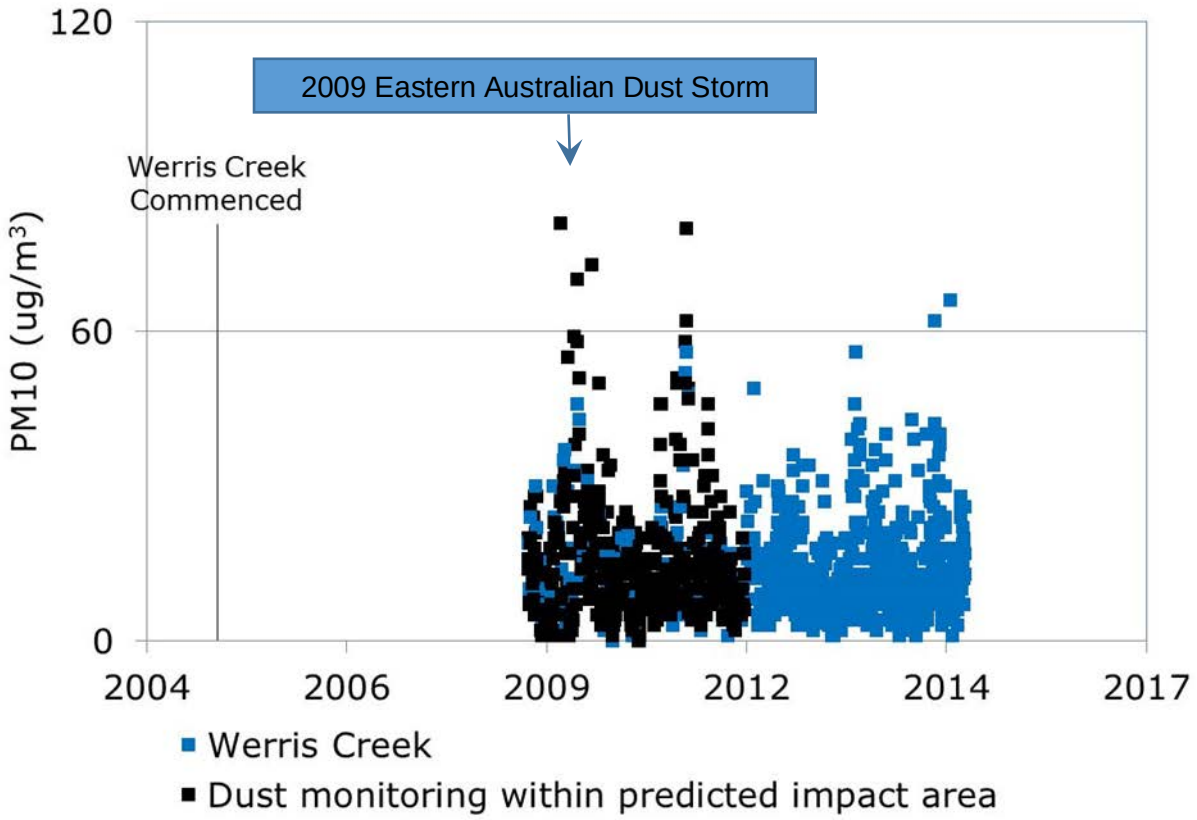

Figure 5. Dust levels from 2004 to 2017

Notes:

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

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.

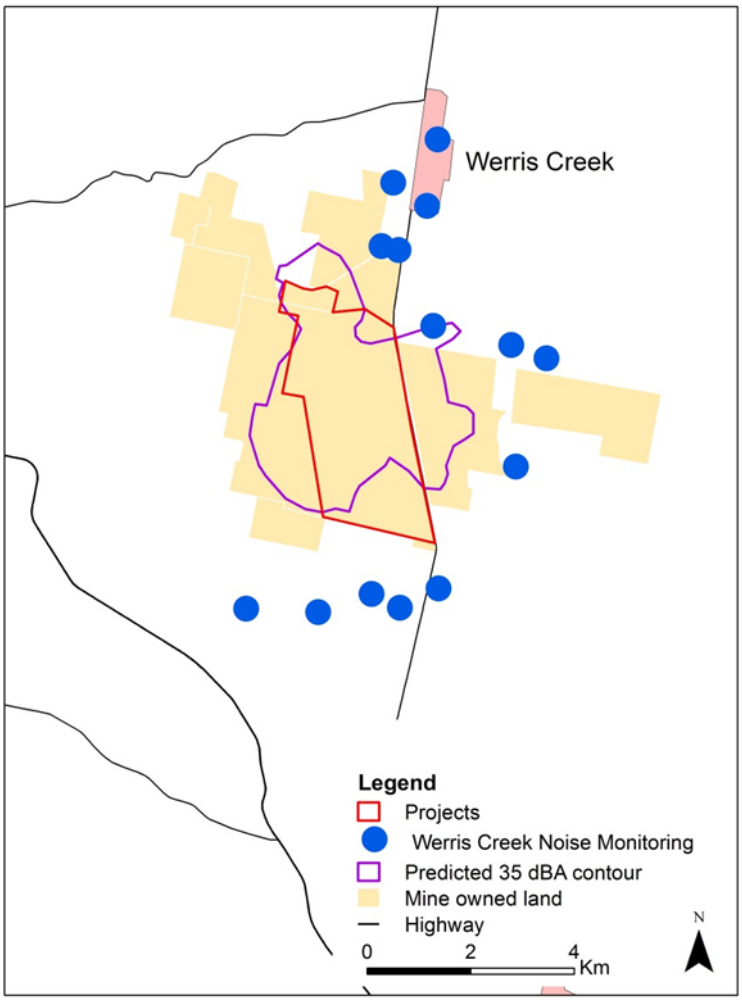

Figure 6. Noise monitoring locations

Noise levels from projects

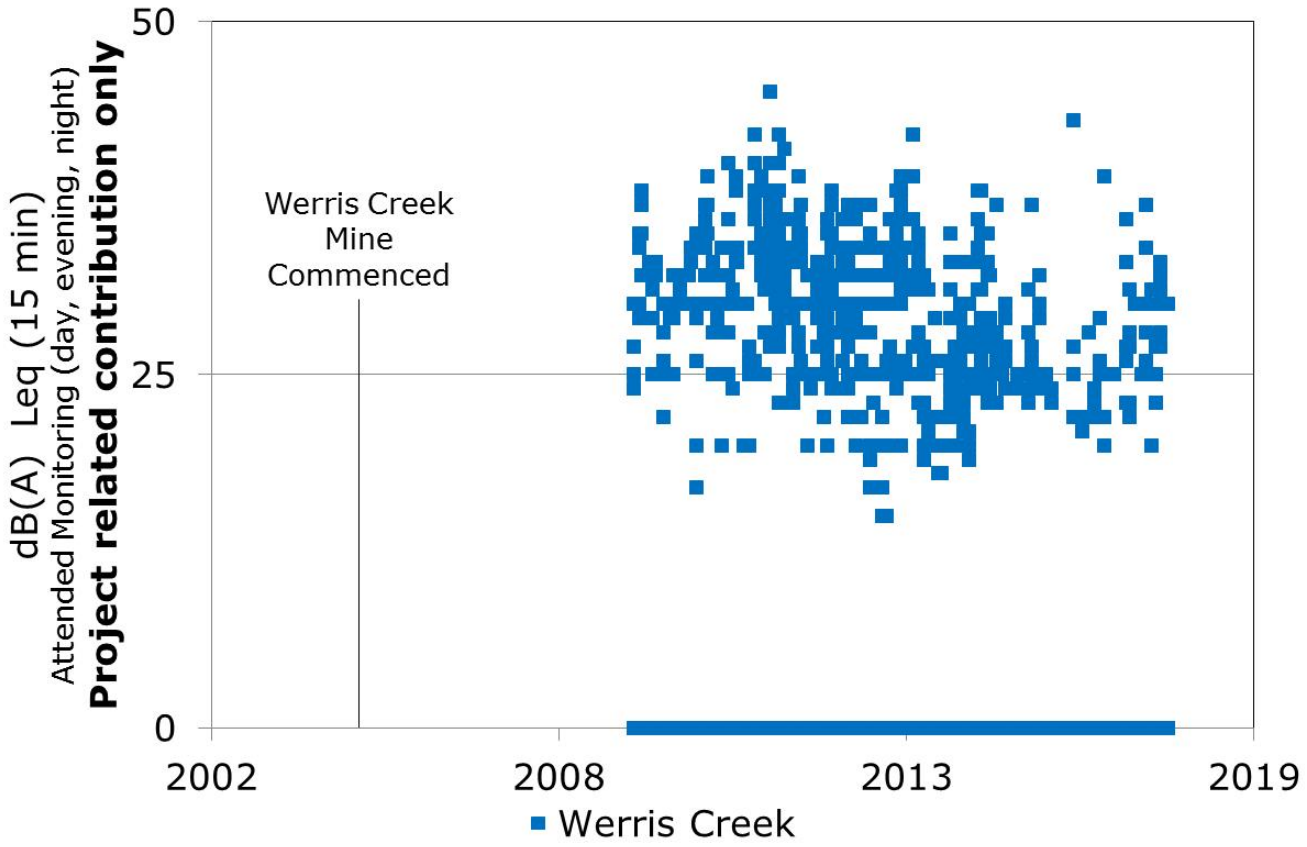

Figure 7. Noise levels from 2004 to 2020

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.

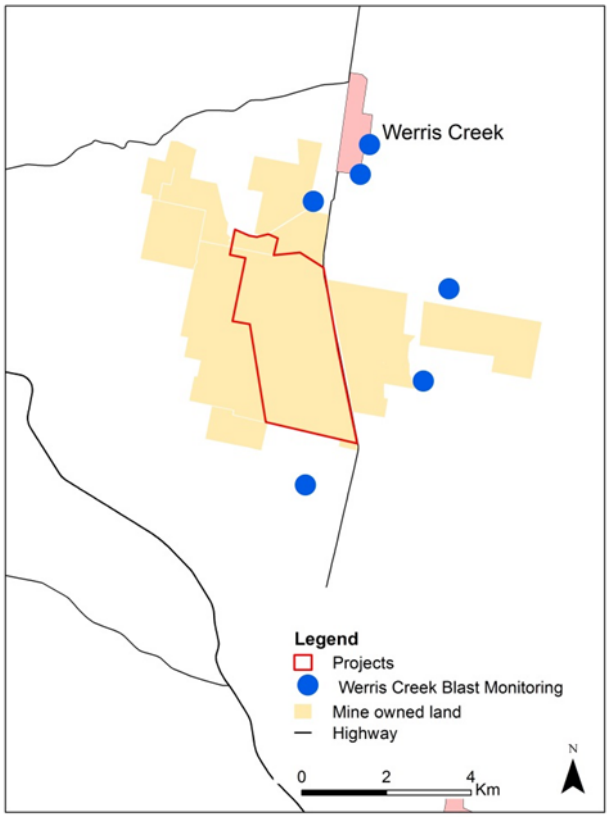

Figure 8. Blast monitoring locations

Table 2. Number of blasts at each project site

	Werris Creek
Period	Apr 2013–Mar 2015
Number of blasts	257

Ground vibration and noise recorded during blasts

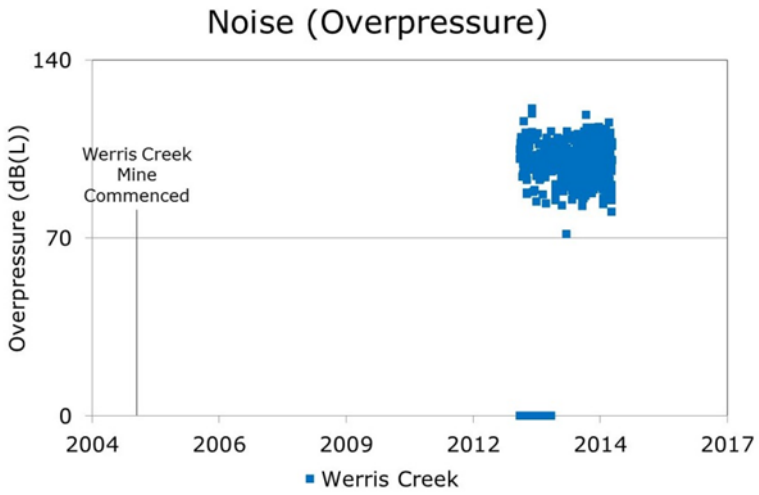

Figure 9. Noise from blasting from 2004 to 2017

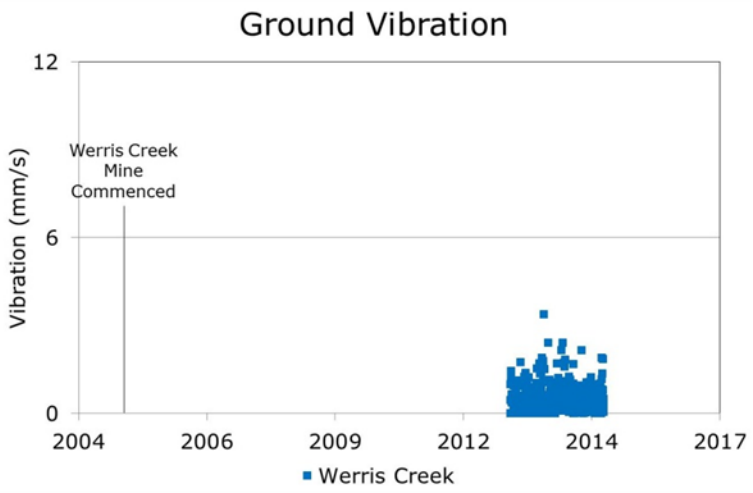

Figure 10. Ground vibration from blasting from 2004 to 2017

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 licensing

- 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.

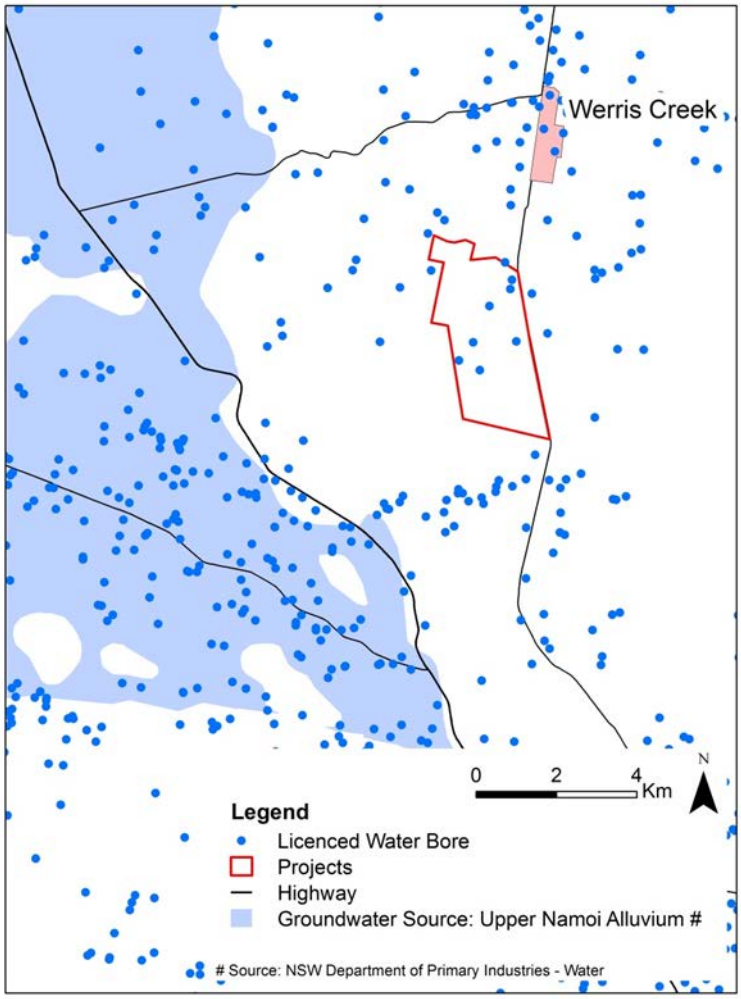

Figure 11. Licenced water bore locations

Groundwater (Aquifer)

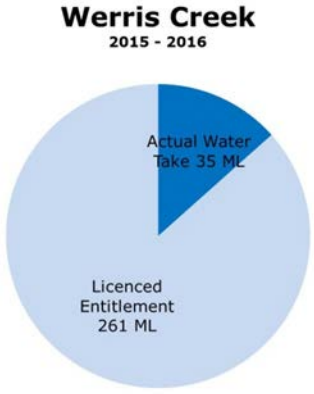

Figure 12. Licenced entitlement for the project

Regulated river water (high security)

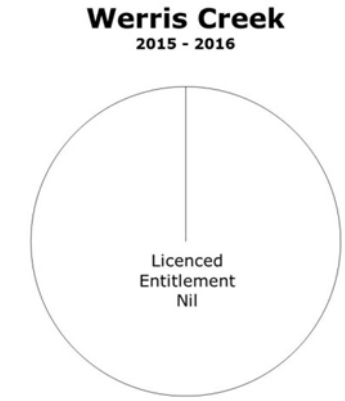

Figure 13. Licenced entitlement for the project

Regulated river water (general security)

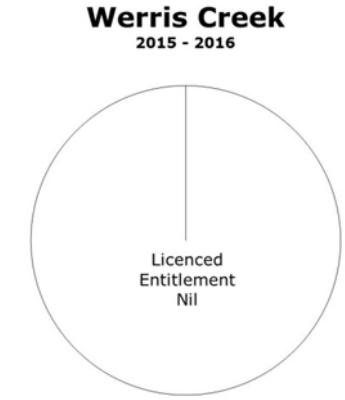

Figure 14. Licenced entitlement for each project

Regulated river water (supplementary water)

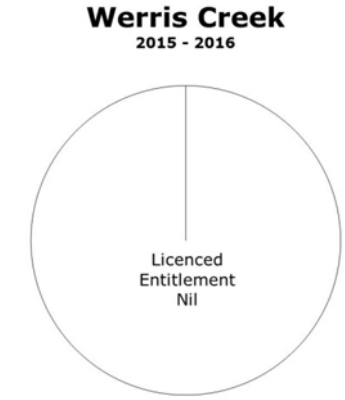

Figure 15. Licenced entitlement for the project

Company monitoring of groundwater levels

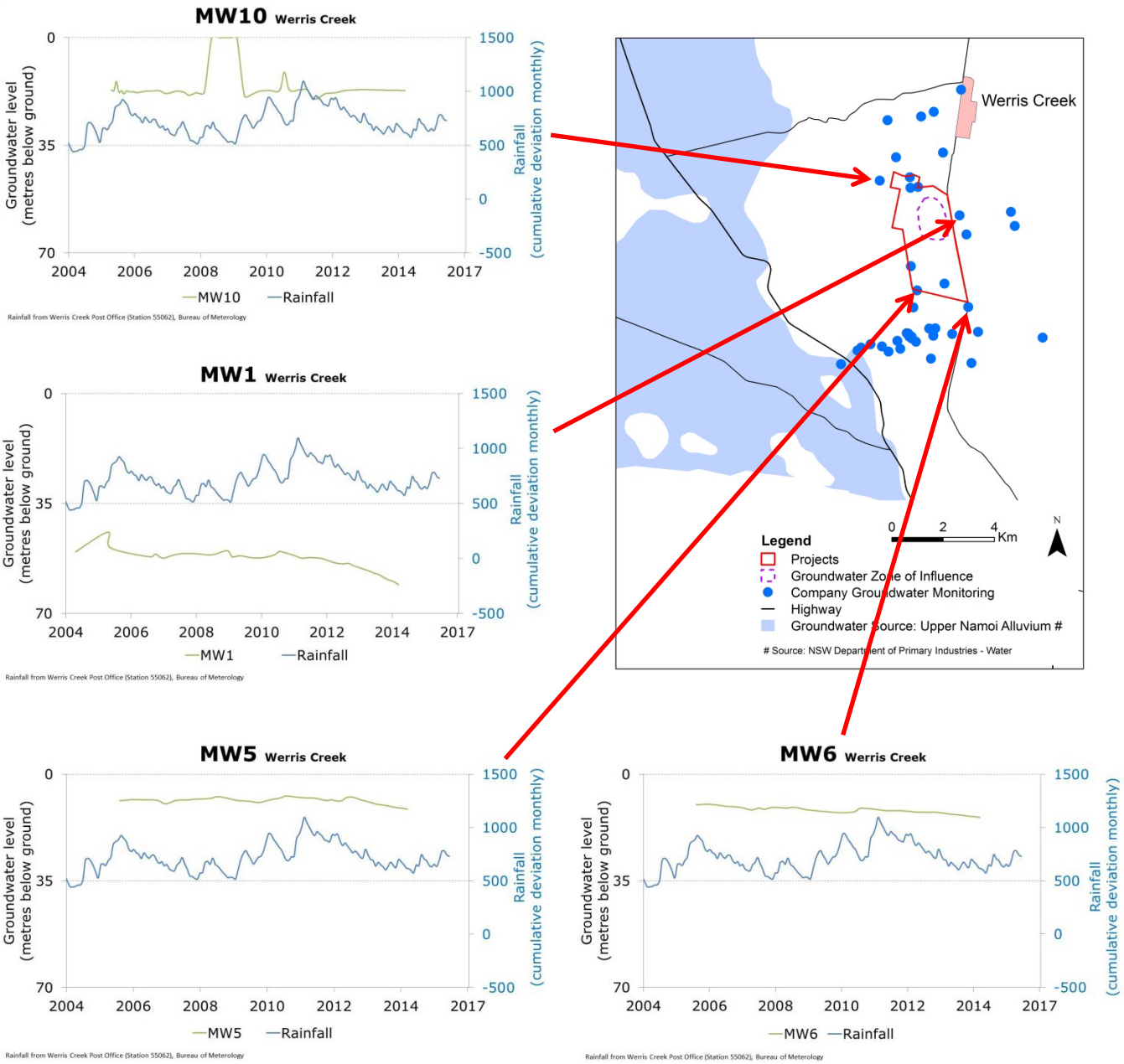

Figure 16. Four examples of company groundwater monitoring

Notes:

- This document only includes a few examples for groundwater monitoring sites.
- Thin dash blue line shows rainfall is above average if the line is rising and below average when it is falling.
- Visit company websites for more information on groundwater monitoring.

NSW Government monitoring of groundwater levels

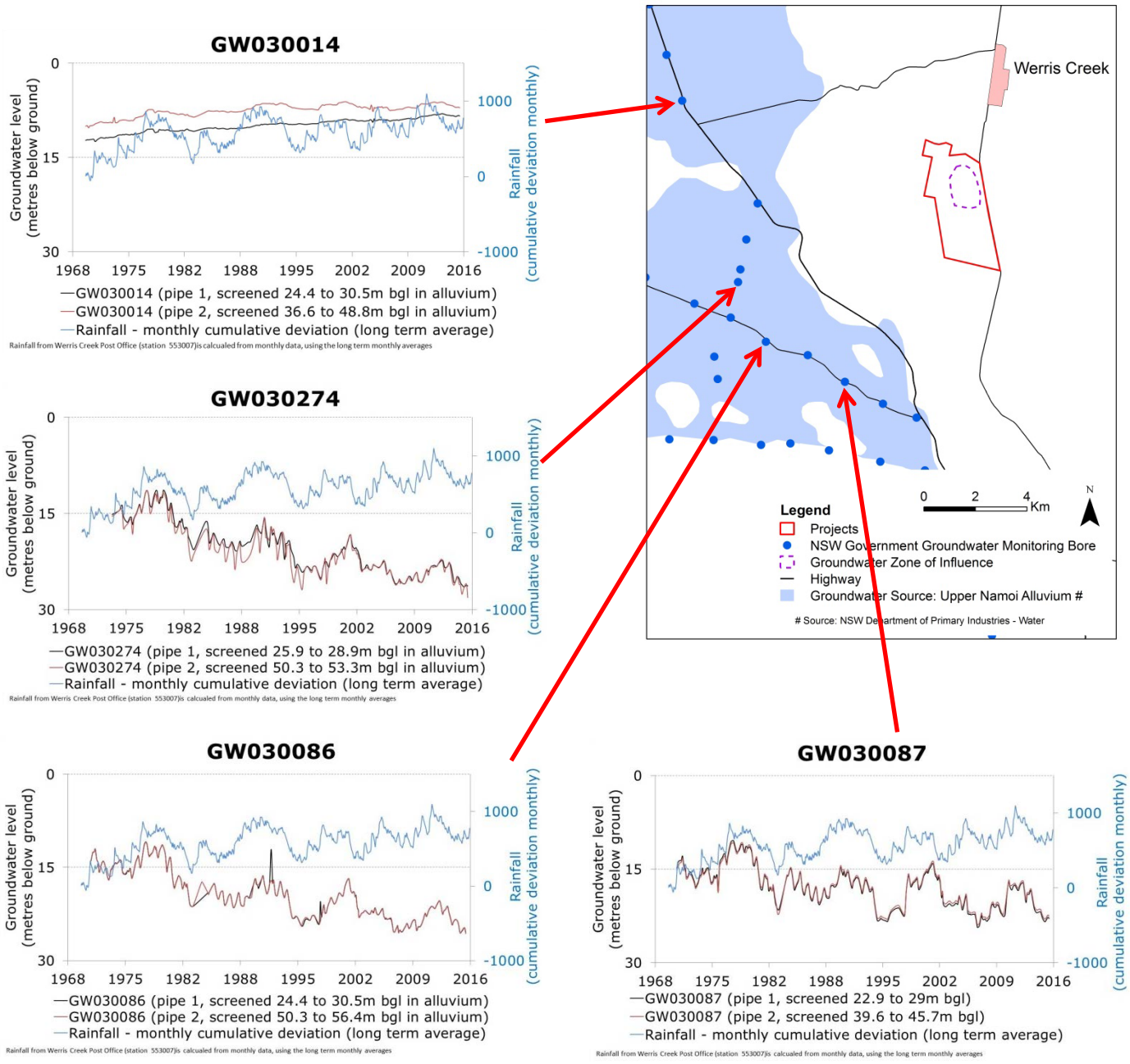

Figure 17. Four examples of NSW Government groundwater monitoring

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 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.

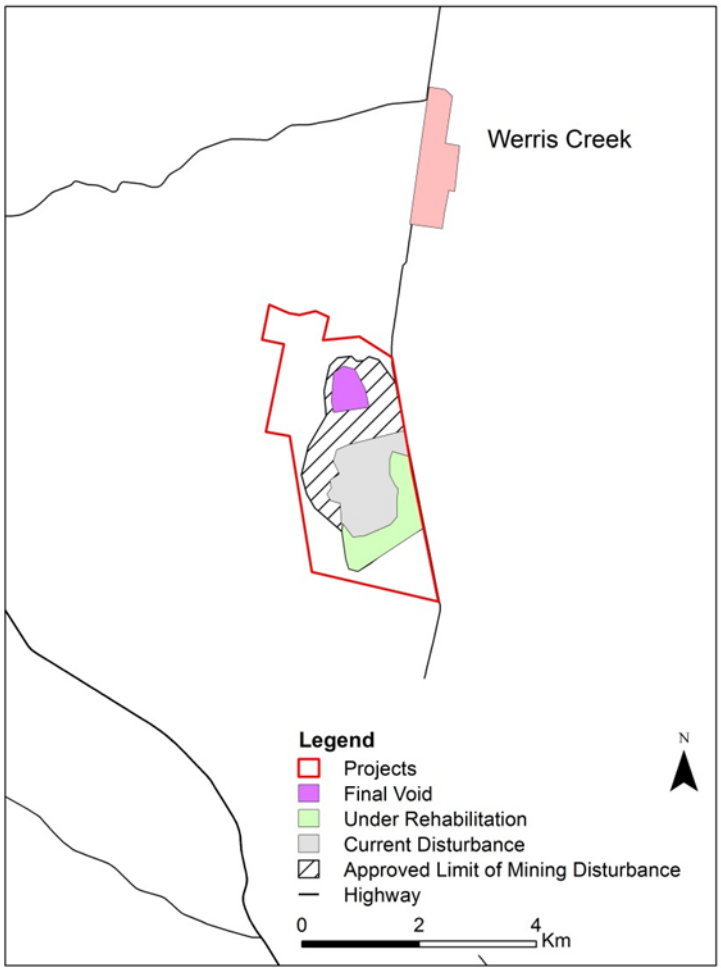

Figure 18. Rehabilitation areas of each project

Table 3. Rehabilitation details for each project

Rehabilitation	Werris Creek
Rehabilitation security held	$14,294,000
Type of security (Cash or Bond)	Bank Guarantee Bond
Last reviewed	June 2016

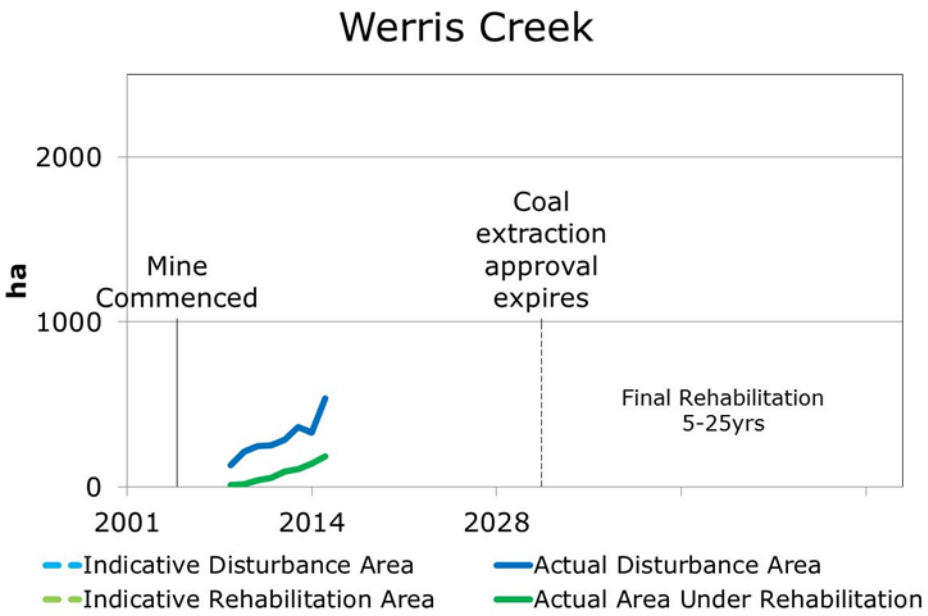

Figure 19. Rehabilitation timeline for Werris Creek