



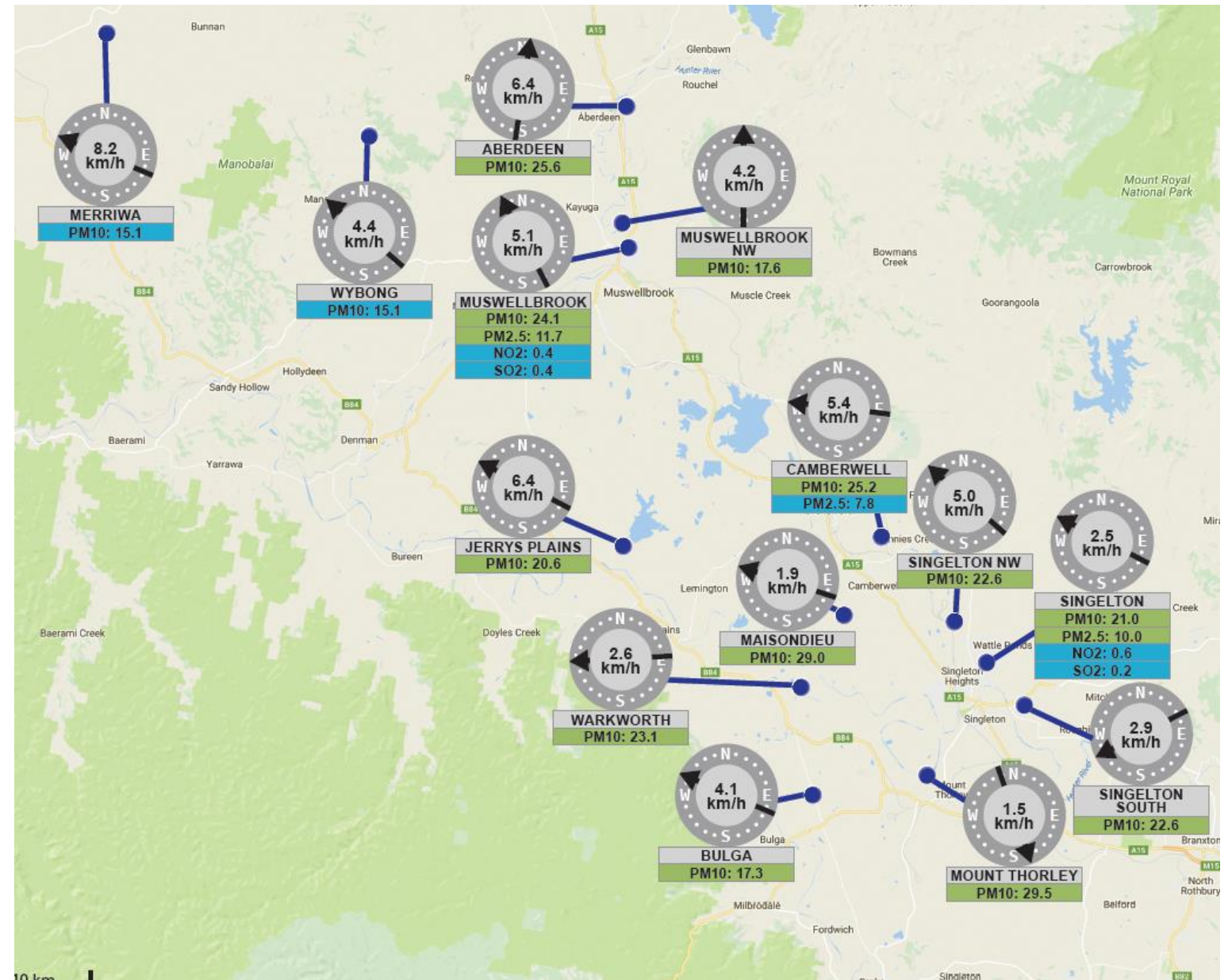
# Air Quality in the Upper Hunter

Adam Gilligan –Director Regulatory Operations, EPA



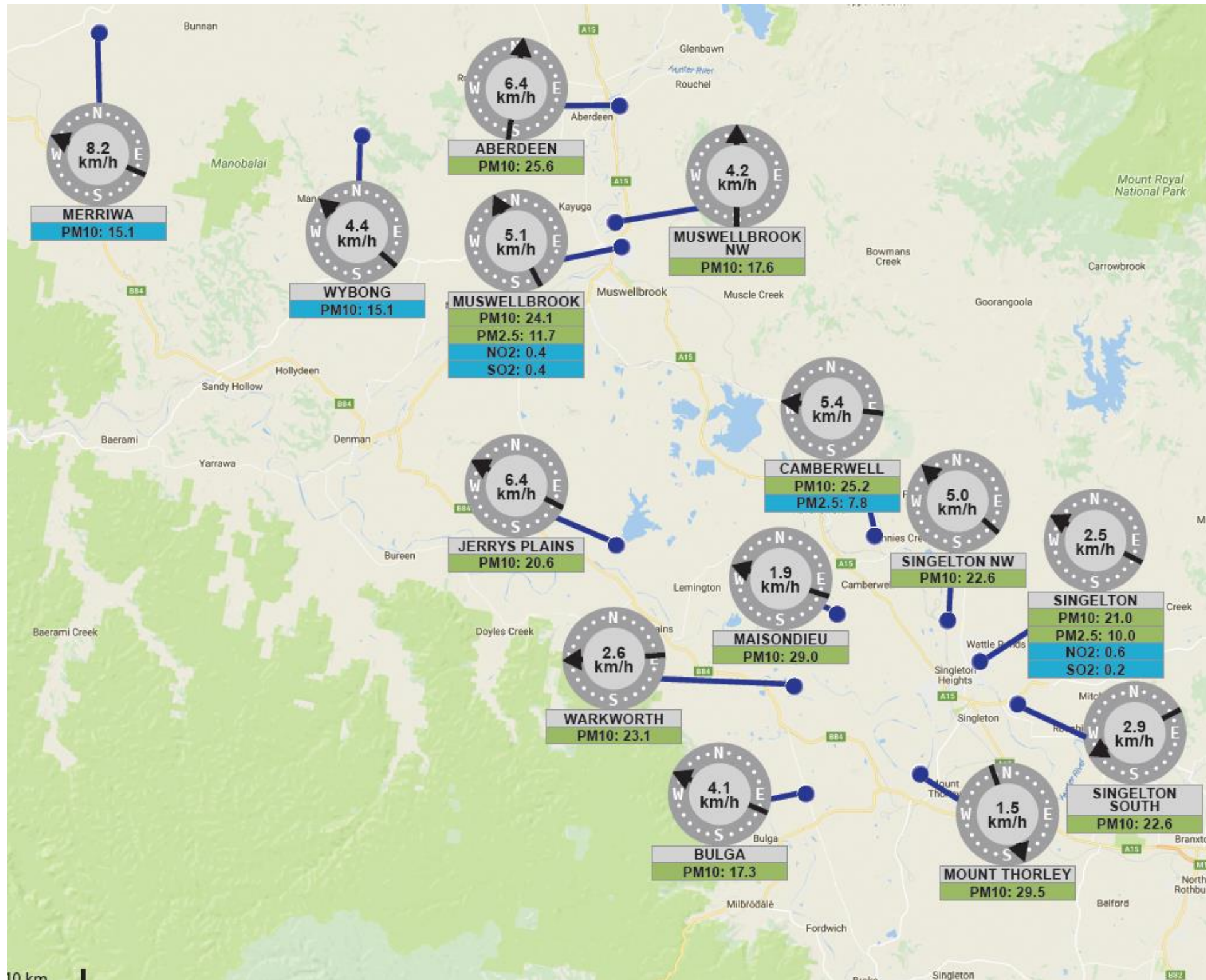
# Upper Hunter Air Quality Monitoring Network

- **14 air quality monitoring stations.**  
Fully established in 2012
- Operated by the Department of Primary Industries, Environment Energy and Science (DPIE EES)
- **Real-time data and reports**, available on DPIE EES website.  
<https://www.environment.nsw.gov.au/topics/air/monitoring-air-quality/upper-hunter/live-air-quality-data>
- All stations measure **PM<sub>10</sub>**
- 3 Stations measure **PM<sub>2.5</sub>** (Singleton, Muswellbrook and Camberwell)
- Two stations measure **NO<sub>2</sub>** and **SO<sub>2</sub>** (Singleton and Muswellbrook)

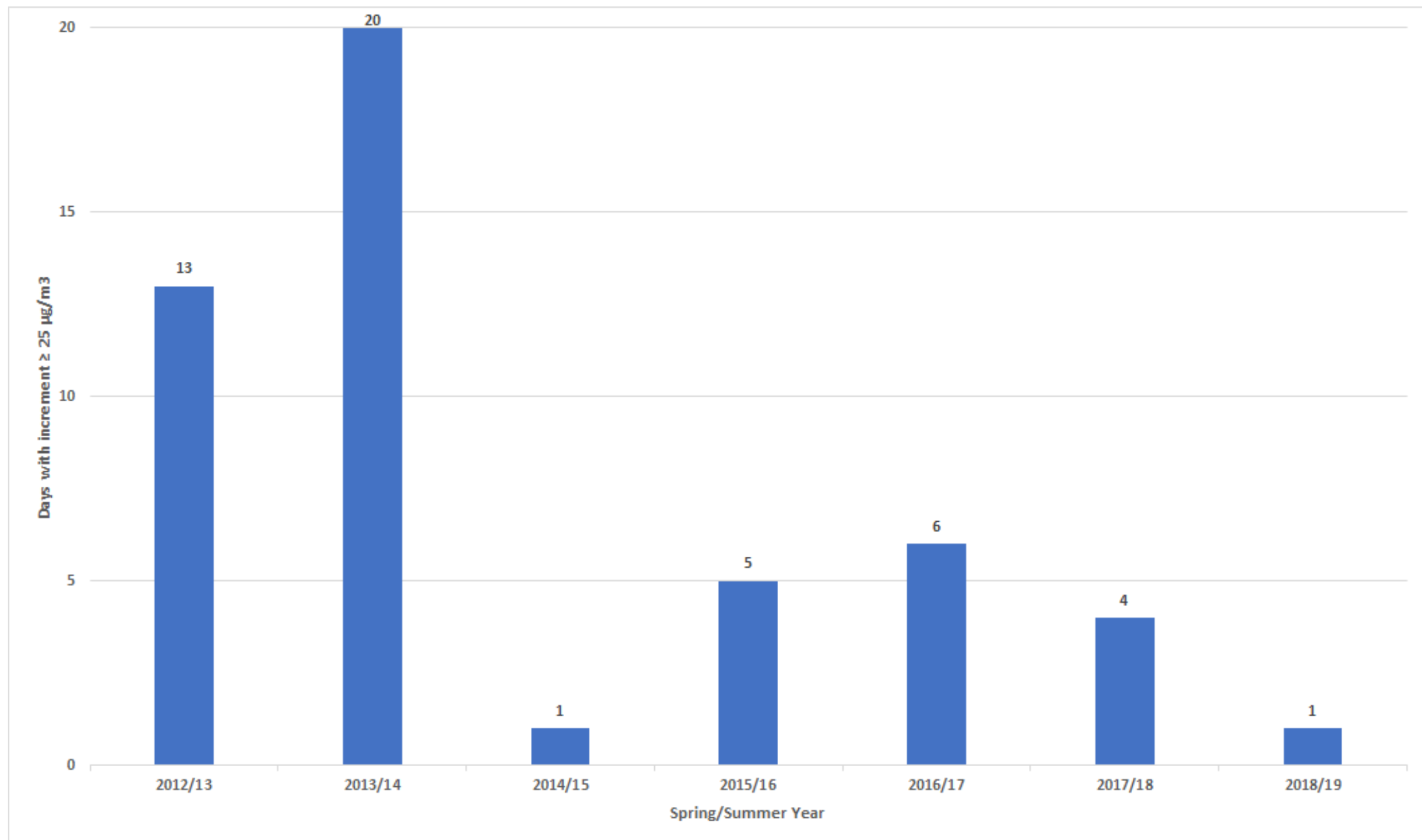




# Upper Hunter Air Quality Monitoring Network

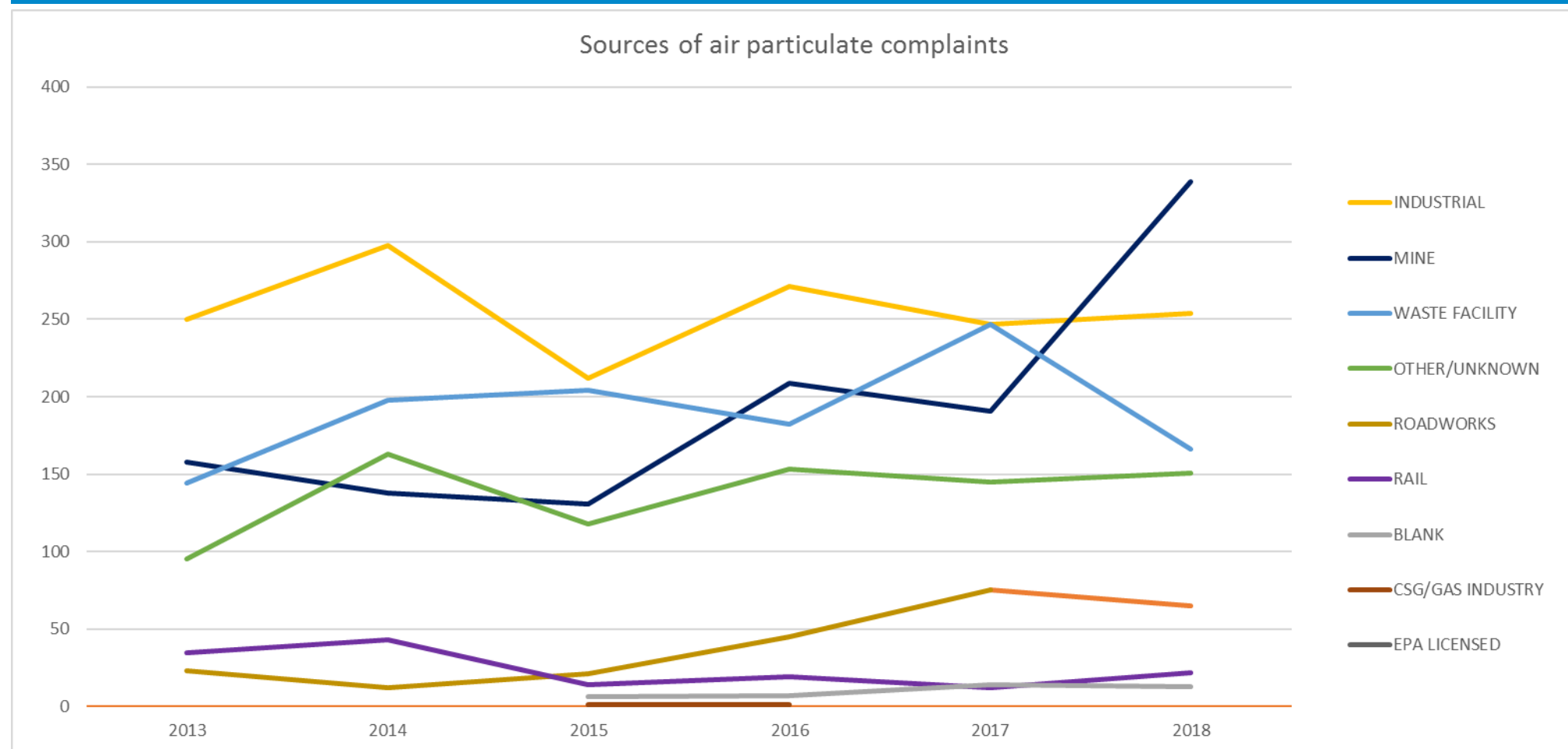


# UHAQMN – Days with significant change in air quality between Merriwa and Singleton



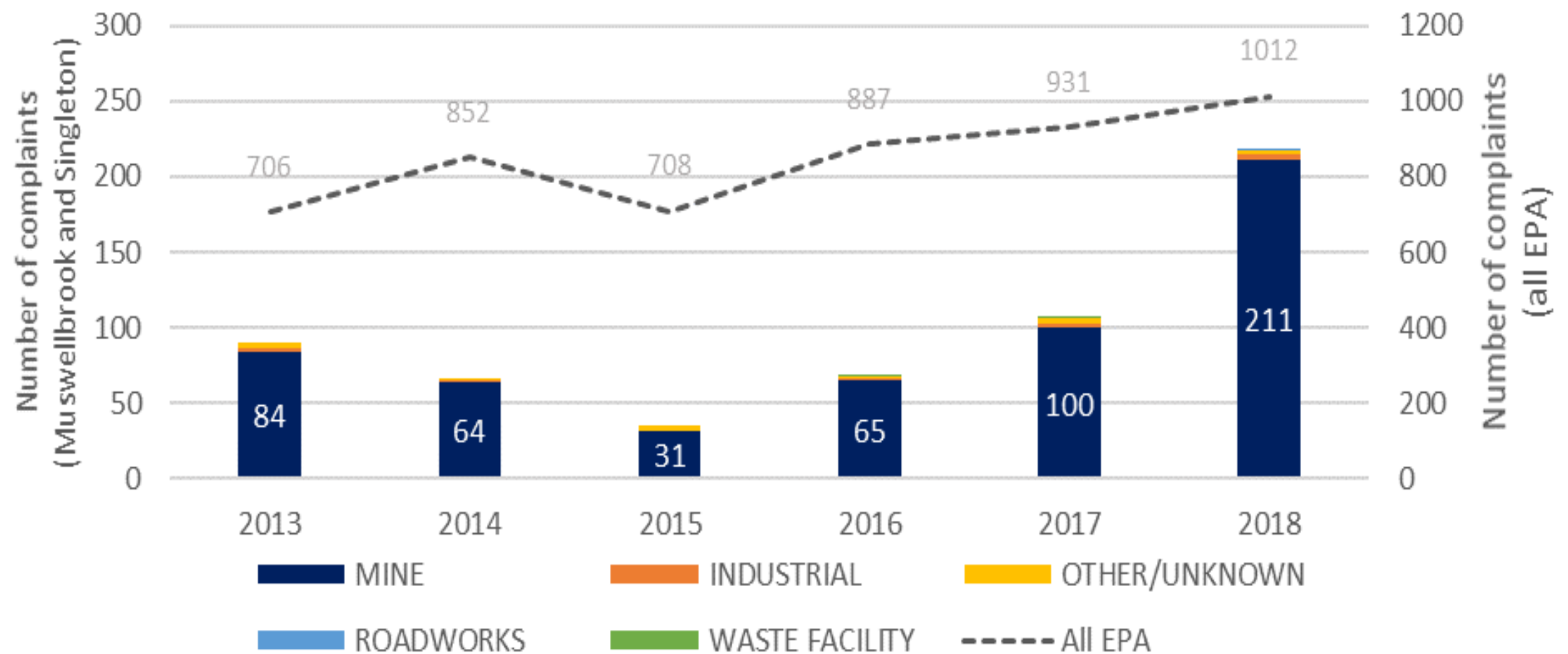
# Complaints analysis

Mines are now our biggest source of dust complaints



# Complaints analysis

## Complaints about Upper Hunter mine dust are increasing

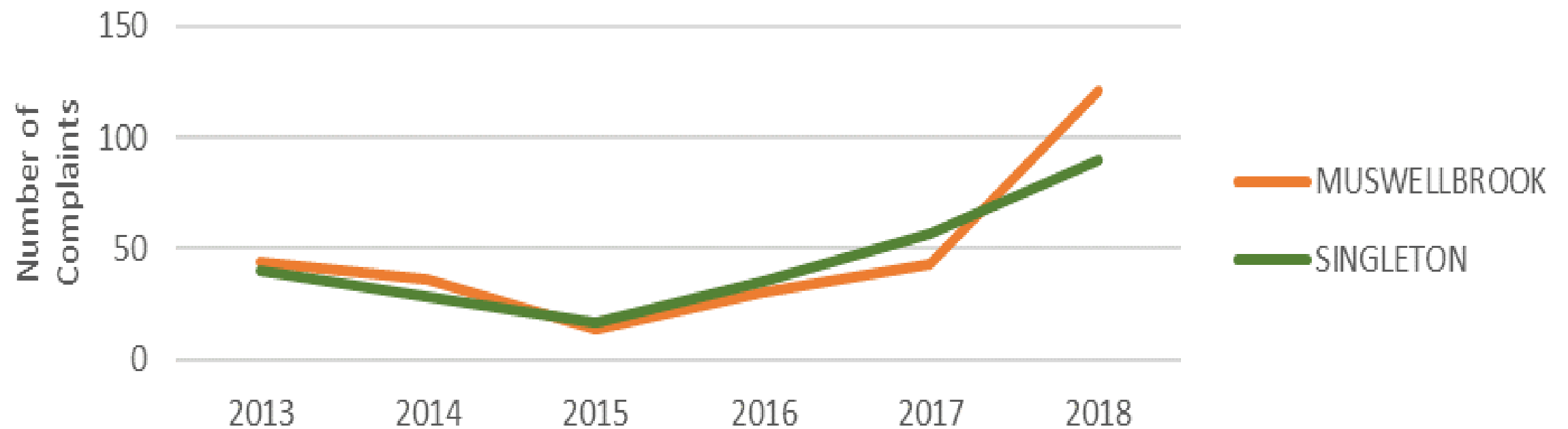


# Complaints analysis

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Muswellbrook is becoming a focus

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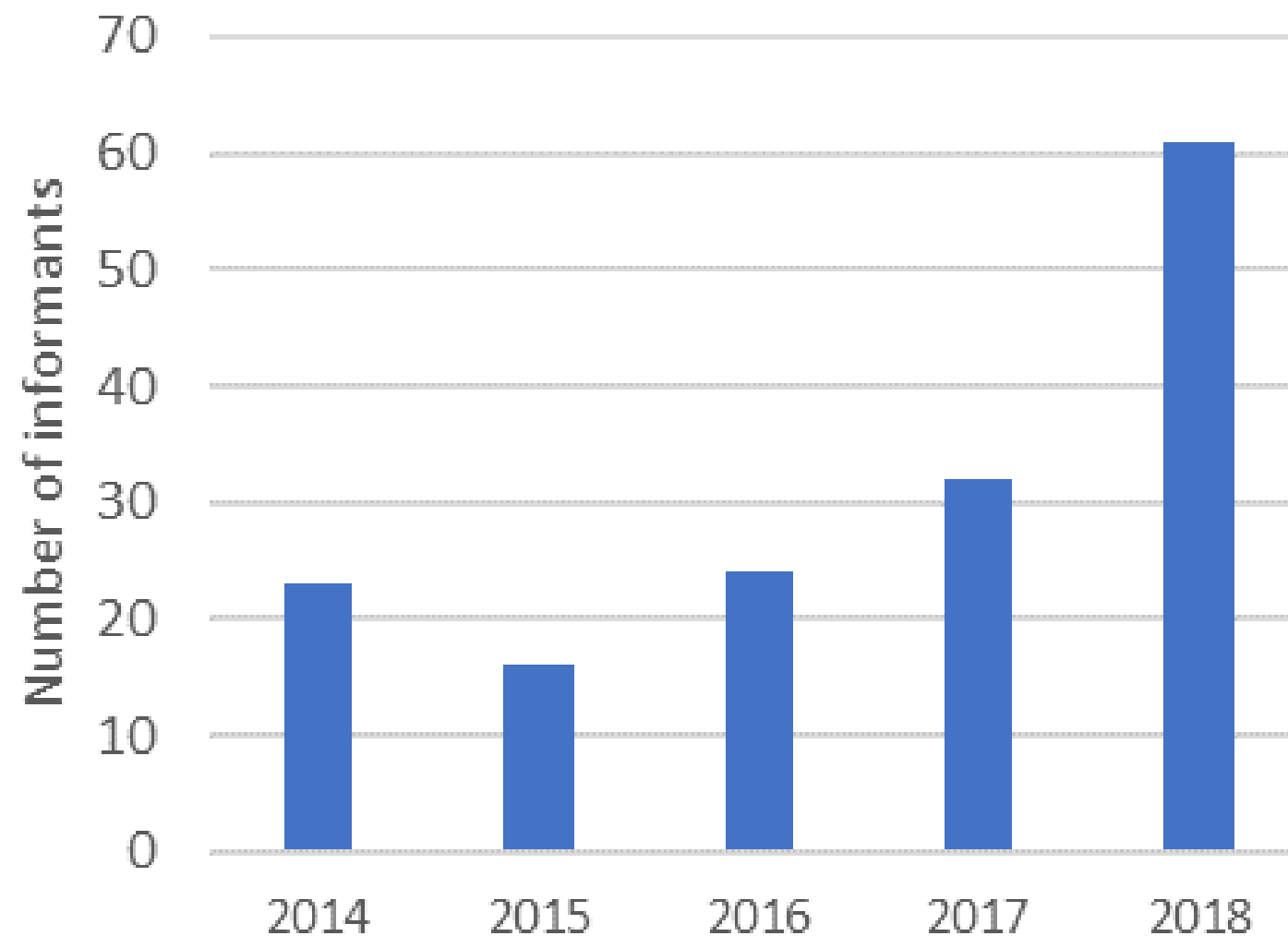


# Complaints analysis

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More Upper Hunter residents are reporting mine dust

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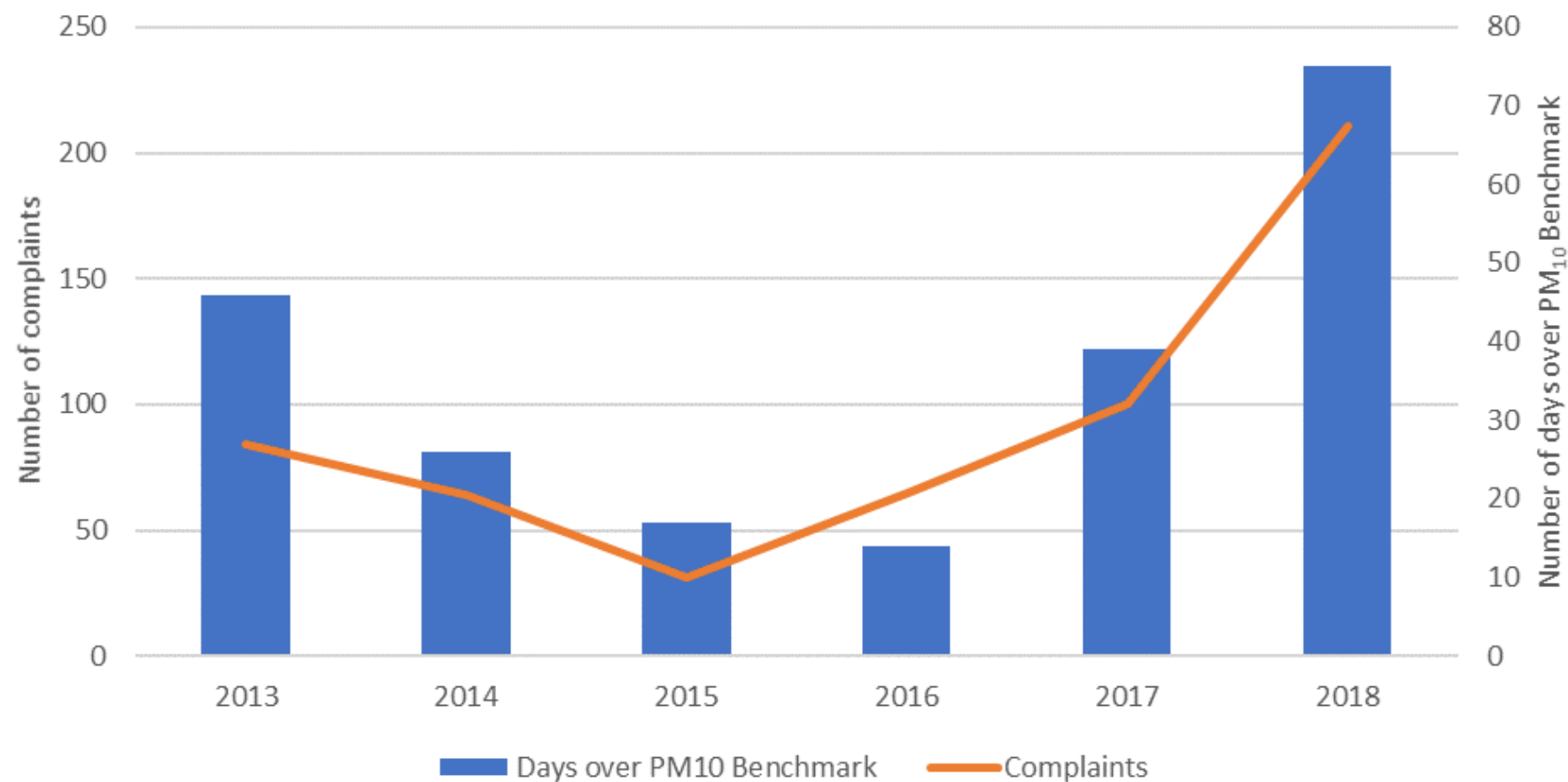


# Complaints analysis

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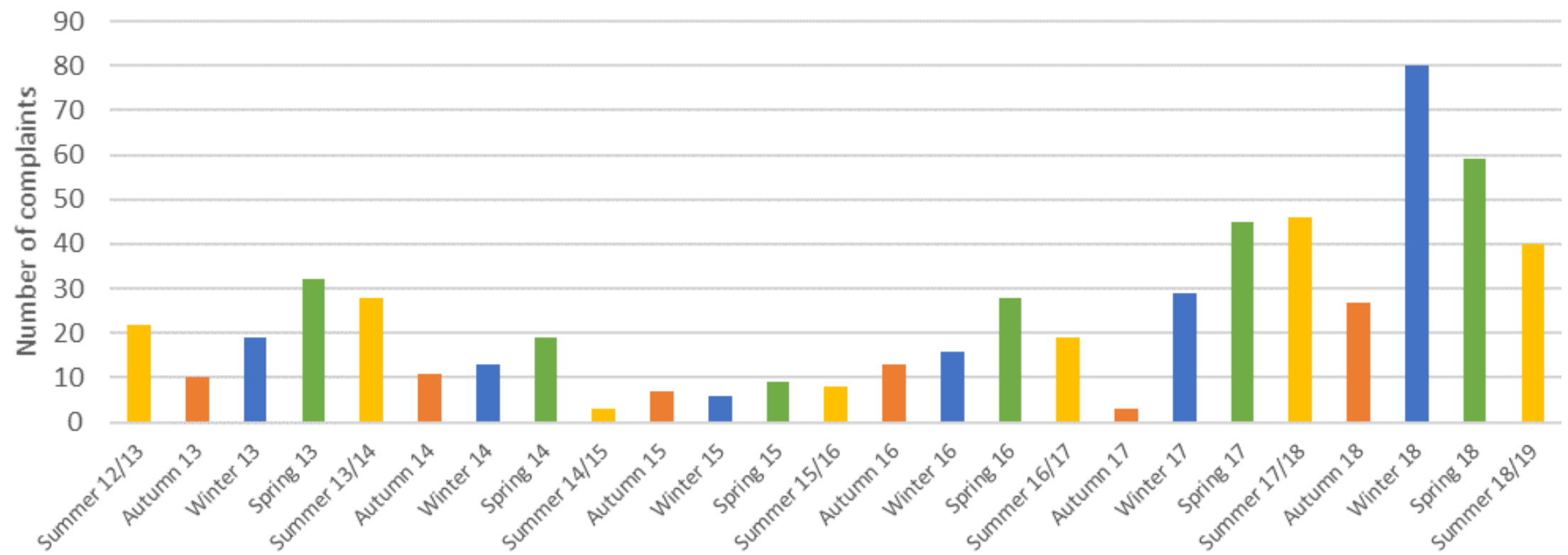
Complaints are linked to poor Upper Hunter air quality

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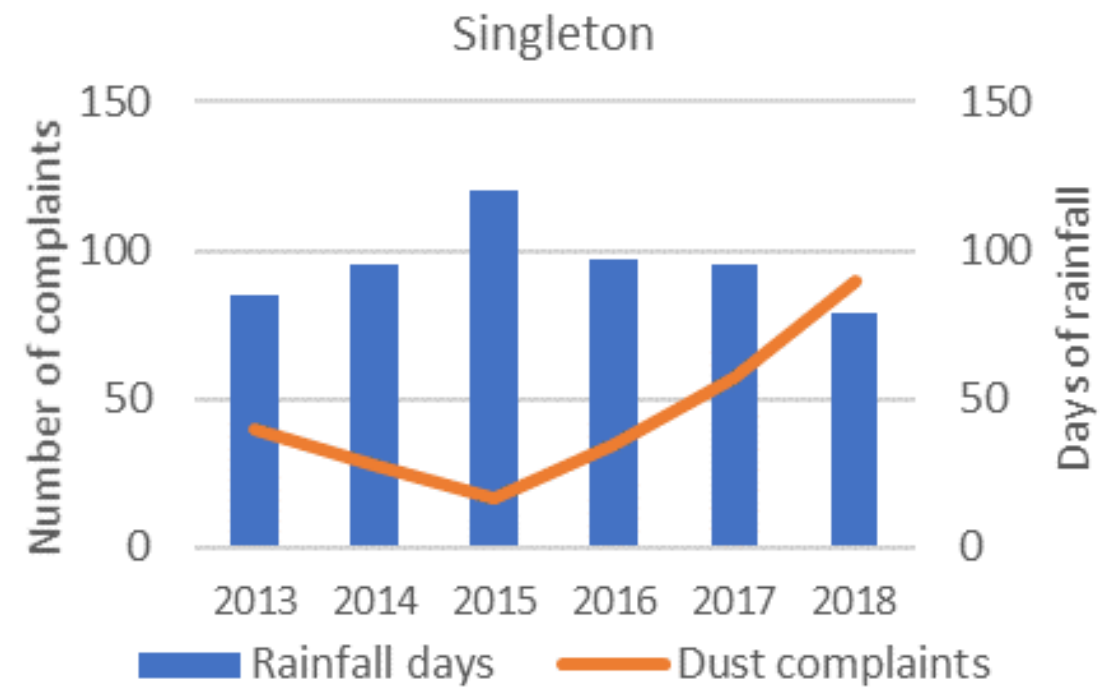
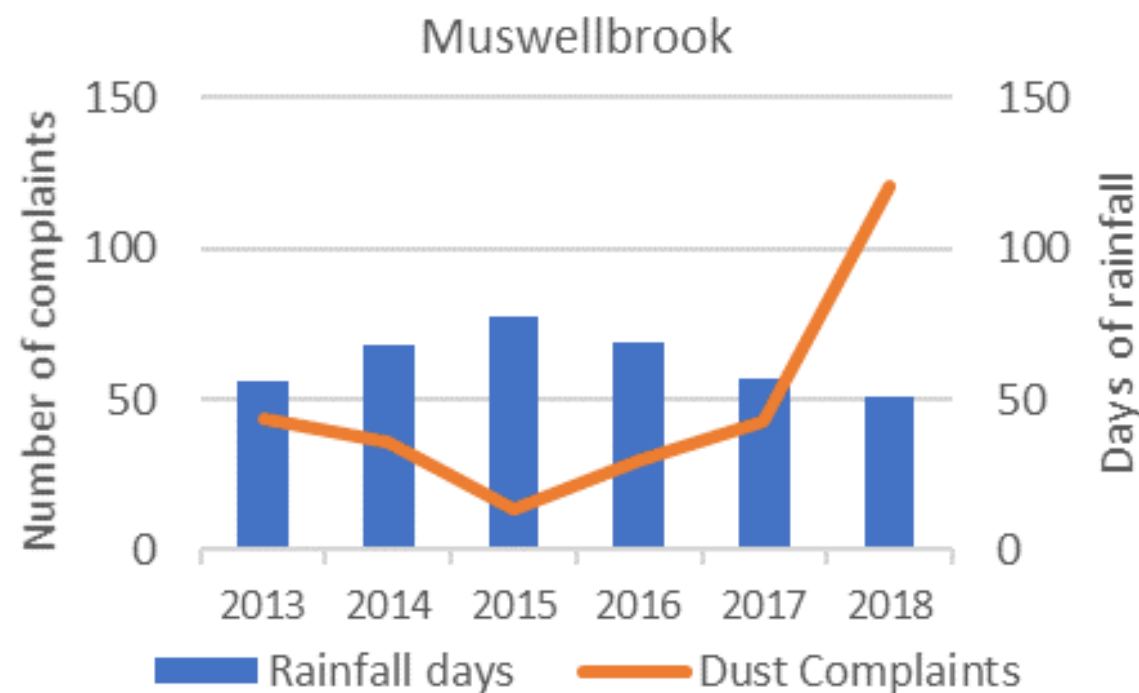
# Complaints analysis

Complaints increase in spring, but last year spring was early



# Complaints analysis

## Complaints increase in dry weather







# How does the EPA regulate air quality

## Environment Protection Licences

- Regulate industry, including mining with Environment Protection Licences
- Conditions on licence are how the EPA regulates activities e.g. activities that can be undertaken, limits, monitoring, reporting. This includes air quality.
- Licence is required to be substantially consistent with Development Consent
- Can include Pollution Reduction Programs such as 'Dust Stop'
- All licences are available on the EPA public register

# Dust Stop Program

Achieving 80% control of wheel generated dust on haul roads

**PRP 1**

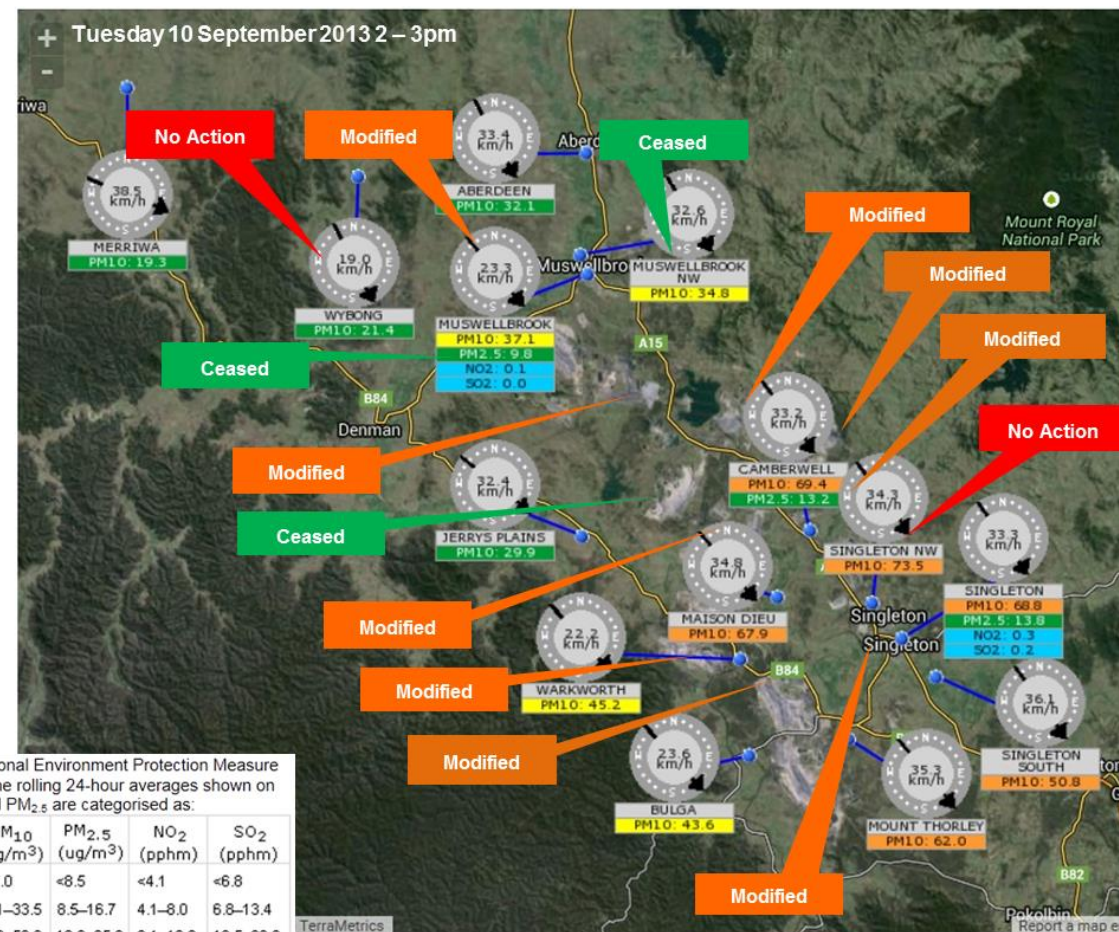




# Dust Stop Program

Modifying operations during adverse weather to reduce dust

PRP 2



According to the National Environment Protection Measure (NEPM) standards, the rolling 24-hour averages shown on the map for PM<sub>10</sub> and PM<sub>2.5</sub> are categorised as:

	PM <sub>10</sub> (ug/m <sup>3</sup> )	PM <sub>2.5</sub> (ug/m <sup>3</sup> )	NO <sub>2</sub> (pphm)	SO <sub>2</sub> (pphm)
Very good	<17.0	<8.5	<4.1	<6.8
Good	17.1–33.5	8.5–16.7	4.1–8.0	6.8–13.4
Fair	33.6–50.0	16.8–25.0	8.1–12.0	13.5–20.0
Poor	50.1–75.0	25.1–37.5	12.1–18.0	20.1–30.0
Very poor	75.1–100.0	37.6–50.0	18.1–24.0	30.1–40.0
Hazardous	>100.0	>50.0	>24.0	>40.0



# Dust Stop Program

Dust controls during loading and dumping

**PRP 3**

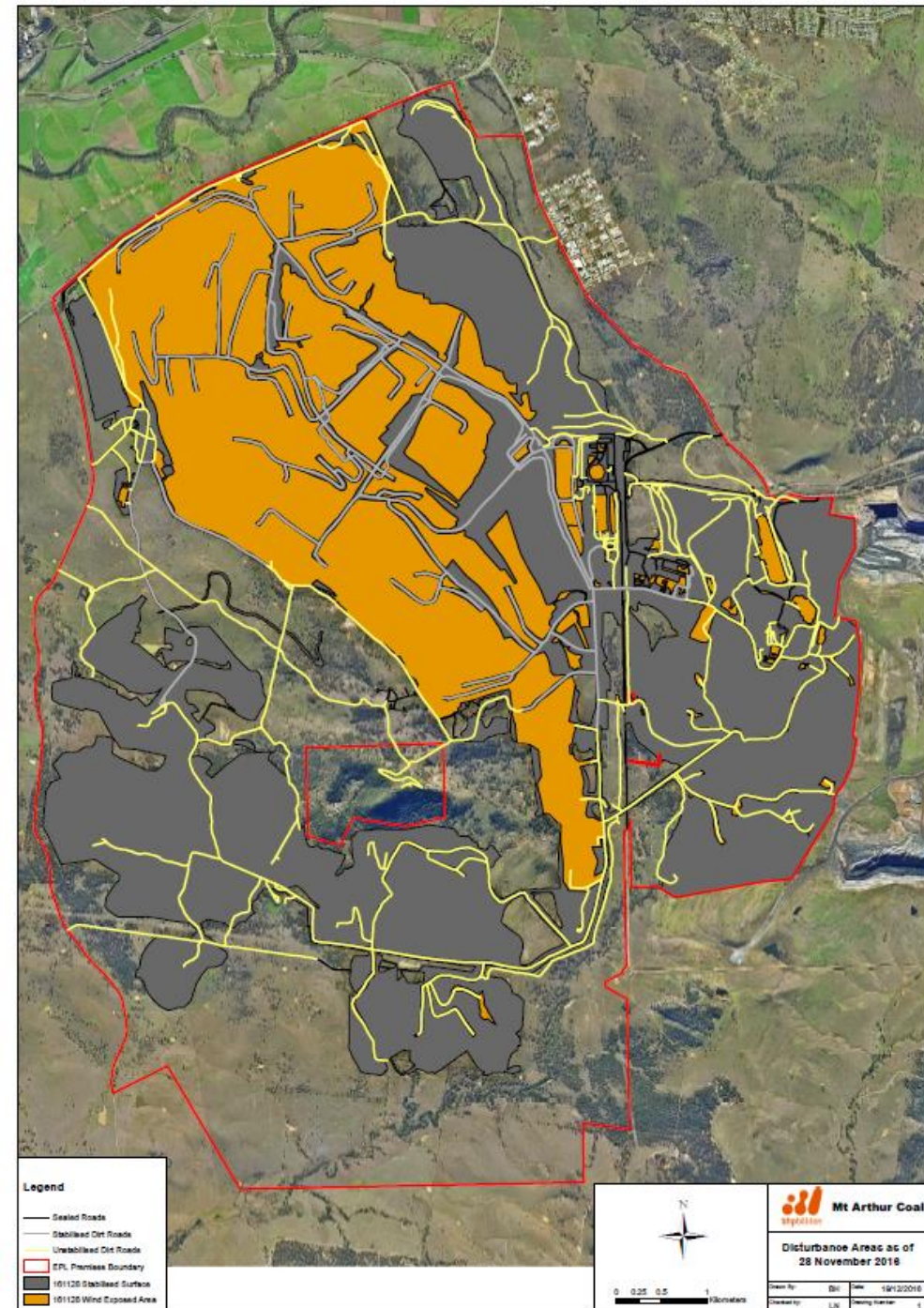


Rix's Creek Mine – best practice dust control

# Dust Stop Program

Reducing areas exposed  
to wind-erosion

## PRP 4





# Dust Handbook

## Dust Assessment Handbook



www.epa.nsw.gov.au

### Vehicles on haul roads

Factors to consider when assessing if operational changes to haul roads are needed:

#### Weather conditions

During periods of strong winds there is increased potential for dust from haul roads to be transported offsite. During calm conditions dust generated from haul roads is more likely to settle back within the mine site.

#### Location

Dust generated from elevated haul roads and dump sites is more likely to be transported offsite than from haul roads deep within the pit.

#### Proximity to site boundary

Dust generated from haul roads near the mine site boundary is more likely to be transported offsite than dust from haul roads in the centre of the mine site.

#### Proximity of the emission to sensitive receptors

Dust generated from haul roads close to neighbouring properties is more likely to cause a nuisance than dust from haul roads that are remote from residences.

#### Duration of the emission

Persistent emissions of dust from haul roads increase the risk of problem dust leaving the mine site.

#### Occupational safety

Some dust minimisation techniques may increase occupational safety risks.



NSW Environment Protection Authority | Dust Assessment Handbook | 4

### Excavator loading

Factors to consider when assessing if excavator loading of trucks requires operational changes:

#### Weather conditions

During periods of strong wind there is an increased potential for dust from excavator loading to be transported offsite. During calm conditions dust generated from this activity is more likely to settle back within the mine site.

#### Location

Dust generated from elevated benches is more likely to be transported offsite than from benches deep within the pit.

#### Proximity to site boundary

Dust generated from excavator operations located near the mine site boundary is more likely to be transported offsite than dust from excavator operations in the centre of the mine site.

#### Proximity of the emission to sensitive receptors

Dust generated from excavator operations close to neighbouring properties is more likely to cause a nuisance than dust from excavator operations that are remote from residences.

#### Duration of the emission

Persistent emissions of dust from excavator loading operations increase the risk of problem dust leaving the mine site.

#### Occupational safety

Some dust minimisation techniques may increase occupational safety risks.



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## Bust the Dust - implementation

- EPA staff are monitoring wind and weather conditions and selecting the worst weather days for inspection.
- A mail out was sent to all Upper Hunter Coal Mines putting them on notice.
- Keeping the community informed with tweets sent out the day prior and day of the inspection and thorough media releases.
- Using drones to see over trees, bunds and ridges and other obstacles.



## Findings

- Mines have been doing the right thing
  - Haul roads are wet
  - Limiting and stopping operations
  - Operating drilling rigs correctly
  - Observed blasts have been managed appropriately



# Drone Footage – Watering of Roads





Dust was observed blowing off mines from exposed areas



# Wind blown dust from premises





# Wind blown dust from exposed areas

