



**Development of a method of statistical analysis
and reporting framework for Coal Services
monitoring of airborne dust data for the New
South Wales Coal Industry**

University of Newcastle

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1 Introduction and Background

Mining is an ancient occupation that has been long recognised as being arduous and liable to injury and disease. Historically, one of the concerns was coal workers exposure to dust and the development of coal workers pneumoconiosis.

In the Australian state of New South Wales (NSW) the Hygiene Service of Coal Services Pty Ltd have been undertaking personal gravimetric and airborne dust monitoring in all NSW coal mines since 1983 to measure and report exposures to inhalable and respirable dust. Since 2001, this monitoring is conducted on a regular, scheduled basis in accordance with Order 42.¹ The results are stored in a specific database. Following each instance of monitoring each mine is provided with regular report (mg/m^3) which identifies any exceedance of the occupational exposure limit. If the monitoring identifies that additional, specific follow up action is required at a mine a report is provided to the Standing Dust Committee. To date, no further use is made of these results that are a valuable source of data.

At an organisational level, mining company office holders and mine managers, who have a responsibility to ensure the maintenance of a healthy and safe work environment, are required to have in place systems to monitor hazards and risk. This is to ensure that the control measures in place to manage risk to health are working effectively. Leading performance indicators, such as personal exposure the monitoring of airborne dust data, provide ongoing information that enables responsible persons to determine whether the risks are adequately controlled. Failures or exceedances, can also provide an early warning of weaknesses in the control system.

At the industry level, the Mine Safety Advisory Council has been promoting a program of the systematic management of those hazards with known risks to human health. Part of this program of work includes the promotion of leading indicators to monitor industry performance over time. Both the Department of Industry and Investment NSW (I&I) and Coal Services bear a legislative responsibility for collecting, analysing and making available quantitative information relating to workplace health and safety so that industry can make informed decisions about health and safety management.

2 Literature Review

In the late 80s and early 90s much research activity surrounded the establishment of an exposure-response relationship between coal workers pneumoconiosis and dust exposures.² These studies utilised extensive dust sampling surveys undertaken in Britain and the United States.

The use of routinely collected dust monitoring data has been previously detailed. Farry³ reported that BHP Billiton Central Queensland coal mining operations established an Occupational Hygiene

Technical Committee (OTC) in 2001 who identified the need to establish an exposure monitoring program and conduct statistical analysis on the exposure data in order to lay the foundation for the BHP Billiton Hygiene Management Plan.³ The OTC concluded that exposure data collected over the previous 30 years at their operations was either collected in a reactive fashion, incomplete or lost over the decades due to staff turnover and failed to provide ‘a legally robust statistical depiction of occupational exposures.’ Farry concluded that the Hygiene Risk Control Plans have benefited their business by focusing resources on the more highly ranked risks placing “occupational hygiene on a more sustainable footing... (and providing) a ‘step change’ in preventative and protective occupational hygiene management.”

In 2009 the International Council of Mining and Metals (ICMM) published the guide, ‘Good Practice Guidance on Occupational Health Risk Assessment’,⁴ to provide a framework for estimating exposure levels and assessing the effectiveness of controls. This guide also outlines the importance of quality analysis and reporting and promotes a risk assessment process where the risk rating creates an action threshold requiring a standardised risk management response. The guide provides criteria for estimating exposure levels and the level of risk.

The data exists for NSW to enable activities such as detailed above to be undertaken. The aim of this project is to formulate a concise report to the management of coalmines as to their current level of exposure levels for a variety of settings and activities and a quantitative and qualitative depiction of their level of airborne dust control.

3 Methods

3.1 Data source

This project utilised the monitoring of airborne dust data collected 1983 – 2011 by the Coal Services Hygiene Team for all coalmines in New South Wales. The use of this data is appropriate for this project for a number of reasons:

1. It is the only source of complete data in existence for the state of NSW
2. The data has been stored in a database in a consistent manner with defined data fields for the entire period
3. The sampling and physical analysis methods have remained consistent since monitoring commenced, other than that required by the change in the Australian Standard (AS 2895-2004⁵ and AS 3640-1989⁶) on pump flow rate. At that time, data was collected for a period using the old and new flow rates and a correction factor determined.

This data was retrievable from the database for the fields listed in Table 1 below.

Table 1: Available Data Fields 1983 - 2011

<i>Variables used from the Coal Services Hygiene Database</i>		
<i>Date and time</i>	<i>Mine</i>	<i>Result</i>
<i>Sample and filter number</i>	<i>Seam</i>	<i>Sample type (statutory or special)</i>
<i>Occupation</i>	<i>Silica present</i>	<i>Inhalable or respirable sample</i>
<i>Use of respirator</i>	<i>Type of mining activity</i>	<i>Silica present (where present, amount)</i>
<i>Beard</i>	<i>Position within seam mining</i>	<i>Tonnes mined on shift</i>
	<i>Suppression methods in use</i>	<i>Ventilation rate</i>

3.2 Statistical checks

The following statistical plan was used:

1. Completeness of the dataset will be assessed by determining the proportion of missing observations for each variable listed above;
2. Descriptive statistics determined for each variable, e.g., mean, median, standard deviation, and range, in both graphical and tabled formats
3. Re-examine the correction factor for the change in sampling pump flow rates to enable comparison of pre and post 2004 data to ensure its validity for the purposes of the framework;
4. Determine the use mining districts as benchmark groups based on sampling results;
5. Determine similar exposure groups (SEGs) based on sampling results;
6. Determine similar operational tasks (SOTs) based on sampling results; and
7. Describe historical exposure trends, by mine using time series analysis.

3.3 Standardised report

8. Determine statistical analysis techniques suitable for use by Coal Service Hygiene Service sampling employees for compiling current, historical, district, mine, SEG and SOT data reports
9. To develop the format of the report
10. To create the report proforma and the mechanism for importing data into the report; i.e. to semi-automate the production of the report.

3.4 Historic data

1. Historical dataset for use in preparing ongoing statistical reports. Dataset to include individual mine data by location of sampling and activities of persons sampled for the following sampling types:
 - a) sampling of respirable dust
 - b) sampling of respirable quartz containing dust
 - c) sampling of inhalable dust.
2. Produce a report on the historical exposure trends for the NSW mining industry

4 Results

4.1 The advent of MineCheck report

At that time of commencement of this project corporate office of Coal Services instigated the development of a series of reports for individual mines, known as MineCheck reports. The 6 monthly reports Cover a variety of topics including occupational hygiene sampling data, the development of this report changed the focus of this project. Feedback on the OH MineCheck report was that was not easy to interpret. An example of this report is provided in Appendix 1. Therefore we were asked to refocus of aim of the project to producing an easier to interpret and more informative OH MineCheck report with the facilitate automated production.

4.2 Statistical checks

A total of 62,077 sampling results were obtains from Coal Services Occupational Hygiene Services for the period 1994 to 2012. Of these, 24,100 were taken in the most recent 5 years and were retained for this analysis. There were five districts: BHP Billiton, Newcastle, Singleton, West Mines and Woonona in use between January 2008 and December 2012.

As described in section 3.2 above. We conducted extensive checks of the dataset and report the following findings:

1. We found the dataset to be largely free of any years missing data for the variables listed in Table 1 above.
2. Descriptive statistics were used to check the consistency of the data in both graphical and tabulated formats (see Appendix 2).
3. We were unable to re-examine the correction factor for the change in sampling pump flow rates to enable comparison of pre-and post-2004 data as services are were not able to supply the report documenting the process.

4.3 Sampling requirements and reporting guidelines

Order the 42 sets out the monitoring of airborne dust for any coal operation. It requires the monitoring of airborne dust at regular collection and analysis of samples of airborne dust from the breathing zone of people whose health may be affected by the dust. The frequency of sampling, places and persons to be sampled in each part of the coal operation is specified. Table 2 below gives minimum locations, frequencies and persons with sampling only and only allows deviations where difficult, dusty or unusual circumstances occur.

Table 2: Sampling schedule as required by Order 42

<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>	<i>Column 4</i>	<i>Column 5</i>
<i>Location</i>	<i>Frequency of sampling respirable dust</i>	<i>Frequency of sampling respirable Quartz containing dust</i>	<i>Frequency of sampling inhalable dust</i>	<i>Persons to be sample</i>
In each part of the coal operation where longwall mining is fish carried out.	Each producing shift at intervals not exceeding six months	Each producing shift at intervals not exceeding six months	Each producing shift at intervals not exceeding 12 months	Samples to be collected from the breathing zone of at least five persons including, where possible: A shearer operator Two powered support operators A deputy One other person selected by Coal Services Pty. Ltd.
In each part of the coal operation where continuous mining machine operates	Each producing shift at intervals not exceeding 12 months.	Each producing shift at intervals not exceeding 12 months.	At intervals not exceeding 12 months	Samples to be collected from the breathing zone of at least 5 persons including, where possible: a continuous miner driver a side man or cable handler a shuttle car driver a deputy a bid to end attendant or other person selected by Coal Services Pty. Ltd.
In any part of an underground coalmine operation where cement products are being applied.			At intervals not exceeding 12 months	Sample is to be collected from the breathing zone of at least two persons including, where possible: Person loading cement into a mixer persons spraying or applying cement products
In any place in or about an underground coal operation other than those referred to A, B or C.	At intervals not exceeding 12 months	At intervals not exceeding 12 months	At intervals not exceeding 12 months	Samples to be collected from the breathing zone of at least one person

In any place or about an open cut coal operation where dust may be present	At intervals not exceeding 12 months	At intervals not exceeding 12 months	At into walls not exceeding 12 months	Samples to be collected from the breathing zone of at least five persons including, where possible: drill operators, shotfirers and stemmers Mobile equipment operator
In any place in or about a coal preparation plant located within a coal operation where dust may be present	At intervals not exceeding 12 months	At intervals not exceeding 12 months	At intervals not exceeding 12 months	Sample is to be collected from the breathing zone of at least five persons where available

4.4 Standardised report

In formulating a statistical analysis technique and presentation of findings suitable for summarising data reports we took into account the requirements of Order 42. As well as presenting the findings of the last 6 months of sampling, it is important to provide historical trends in the form of the last 5 years for that of the individual mine site, the mine district and the state. It presents sampling results by type of mining operation, location within the mine and mining tasks being undertaken at the time of sampling. This allows mine owners/operators to compare their performance with others in the industry.

In considering the graphical presentation of the sampling results we took the lead put forward by Logan et. al.⁷ who undertook a study of Occupational Exposure Judgements and the American Industrial Hygiene Association Exposure Category Rating Scheme. This scheme provides an exposure rating and descriptively proposes a Control Zone description. We consider that this will further enhance the notion that it is not sufficient to not have exceedances. Table 3 below provides the rating scheme as presented in the proposed standardised report.

Table 3 : How to Interpret Graphical Results

The graph shows the 95th percentile of sample results. For example, if 100 samples were taken, these 100 results would be sorted and the 95th largest is known as the 95th percentile. In other words, 5 out of 100 samples would be greater than the 95th percentile. You will note that your graphs are colour coded. The legend for the colours are shown in the table below. The ratings of control have been discussed extensively in the research literature. To quote “ a properly designed sampling strategy showing that all employees exposed below the Permissible Exposure Limit, at least with a 95% certainty, is compelling evidence that the exposure limits are being achieved...”			
Exposure Rating	Control zone description	General description	AIHA statistical interpretation
4	Poorly controlled	95 th percentile of exposures exceeds the OEL.	$OEL < X_{0.95}$
3	Controlled	95 th percentile of exposures rarely exceeds the OEL.	$0.5 OEL < X_{0.95} \leq OEL$
2	Well controlled	95 th percentile of exposures rarely exceeds 50% of the OEL.	$0.10 OEL < X_{0.95} \leq 0.5 OEL$
1	Highly Controlled	95 th percentile of exposures rarely exceeds 10% of the OEL.	$X_{0.95} \leq 0.10 OEL$

4.5 Historic data

1. We have produced a dataset of historical data for use in producing the revised MineCheck reports. This is supplied in an electronic form.
2. Journal article: we are preparing the Journal article for submission to the Journal of Occupational and Environmental Hygiene which will describe the historical exposure trends for the New South Wales mining industry.

4.6 Database problems identified

As mentioned above a total of 62,077 sampling results were obtained from Coal Services Occupational Hygiene Services for the period 1994 to 2012. Of these, 24,100 were taken in the most recent 5 years and were retained for this analysis. There were five districts: BHP Billiton, Newcastle, Singleton, West Mines and Woonona in use between January 2008 and December 2012. There were five districts: BHP Billiton, Newcastle, Singleton, West Mines and Woonona in use between January 2008 and December 2012. After removing 638 results without a district name, 23462 remained. Seventy five mines were sampled in 2012, after removing 1,500 results from closed mines, 21,962 remained.

Missing or erroneous data

Whilst the database was mostly complete and free from missing data we did find many inconsistencies that would make the automation of the revised report difficult. These inconsistencies would need to be addressed.

Mine Name Recoding

Substantial recoding of the mine name was necessary since the names were spelt in a variety of ways. For example, PTY LTD could be PYT LIMITED the following year, or P/L another year. What might be NO. one year, could be NO (without the period) the following year.

Consistency in names is crucial if one is to be able to count the number of samplings done at a mine, and the number of tests within each sampling, correctly.

Occupation Recoding

This is where the greatest inconsistency was found. For example, CHOCKMAN could be listed as CHOCKMAN MAINGATE, CHOCKMAN/CAVER, M/G CHEARER/CHOCK OP, or T/G CHEARER/CHOCK OP. There were 24 different types of drivers, such as: MULE, TAXI, RAM CAR, LOCO, 913 EIMCO. There were 6 types of bolters. Even after recoding chockmen, shearers, shuttle drivers, miner drivers, electricians, boilermakers, bolters, driller, general, trainees, drivers and examiners, there were still 92 distinct occupations.

Again, consistency is key for occupations, if one is to be able to determine if the correct worker occupations have been samples in accordance with order 42.

Order 42 Reason: Cement Sampling

There was no field in the data supplied by Coal services that identified samples that were collected from workers using cement. We attempted to determine them by selecting the work description as aquacrete or cement mix and the occupation was one of concreter, contractor, grouting, hopper, mixer, pump operator, pumper, roof bolter, sprayer or ventilation sealer, but not chockman, driver, geologist, SMV transport, road header operator, shearer or shiftman.

A summary of database problems are:

1. District name missing
2. Consistency in naming of mine; often spelt in a variety of ways
3. Inconsistency in coding of occupations
4. Cement sampling

5 Conclusion

The Coal Services Occupational Hygiene database is an invaluable resource. To improve the use and quality of reporting back to stakeholders we put forward an alternative standardised report which presents the sampling data in a more user friendly way.

6 References

- 1 Coal Industry Act *Order 42*, New South Wales 2001.
- 2 Attfield MD, Moring K. An investigation into the relationship between coal workers' pneumoconiosis and dust exposure in U.S. coal miners. *Am Ind Hyg Assoc J* 1992;53:486-92.
- 3 Farry J. Health Exposure Assessment: A 'Step Change' in Occupational Hygiene Management *Queensland Mining Industry Health and Safety Conference* 2007.
- 4 International Council on Mining and Metals. Good practice guide on occupational health risk assessment 2009.
- 5 Standards Australia. AS 2895-2004 Workplace Atmospheres – A Method for Sampling and Gravimetric Determination of Respirable Dust, Homebush, New South Wales, Australia 2004.
- 6 -. AS 3640-1989 Workplace Atmospheres – A Method for Sampling and Gravimetric Determination of Inspirable Dust, Homebush, New South Wales, Australia 1989.
- 7 Logan PW, Ramachandran G, Mulhausen JR, Banerjee S, Hewett P. Desktop study of occupational exposure judgments: do education and experience influence accuracy? *J Occup Environ Hyg* 2011;8:746-58.

7 Appendices

Appendix 1 – Example of a MineCheck Report.



> Insurance > Health > Rescue > Environment

Environment Summary

Occupational Hygiene Services (OHyS) undertakes the statutory dust sampling at your mine to meet the requirements of the Coal Mines Health and Safety Regulation 2006. Dust sampling refers to both respirable dust – sampled in accordance with AS 2885 – 2009 and inhalable dust – AS 3540-2009.

Diesel Particulate monitoring is recommended as an essential component of a mine's diesel particulate management plan outlined in section 5.5 of Mine Design Guideline 29 (MDG 29).

This report presents results for diesel particulate, respirable dust by mining method and inhalable dust by mining method. It excludes special sampling, static results and non-statutory dust sampling.

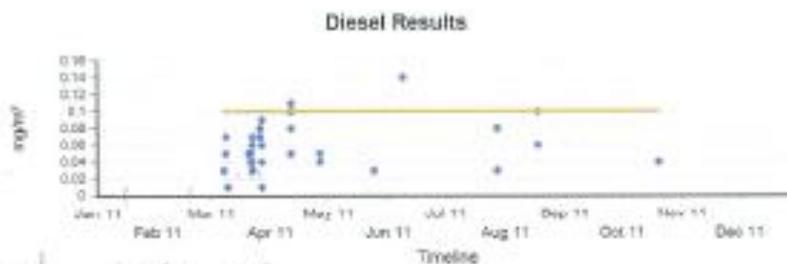
These results relate to the sampling undertaken and results for your site

Period 1/1/2011 - 31/12/2011

Diesel Results

The results of any diesel sampling undertaken at your mine during the reporting period are presented below with reference to the recommended limit outlined in MDG29.

Results above the recommended limit indicate the potential for elevated exposure to diesel particulate to operators in the vicinity. The most common causes of elevated results are: maintenance problems with specific machines; high number of machines operating in a ventilation district; and work being performed in areas that have low ventilation.



Diesel Particulate refers to particles below 1µm in diameter that may cross into the bloodstream and has been listed as a known carcinogen (IARC 2012)

OHyS Recommendations

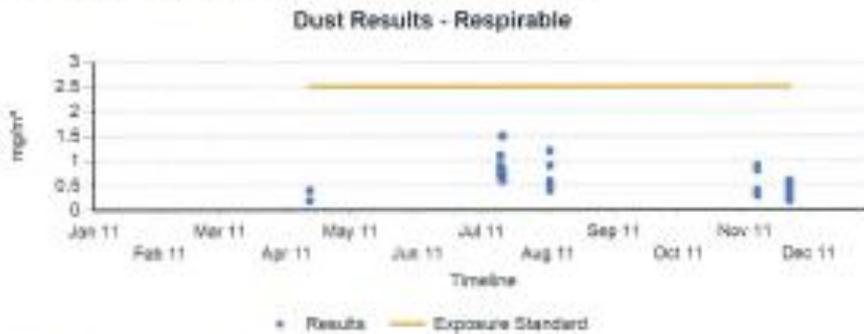
- Diesel Particulate Matter (DPM) exposures < 0.03 mg/m³ controls are adequate
- DPM exposures > 0.05 mg/m³ & < 0.1 mg/m³ investigation is required to assess controls, including PPE
- DPM exposures > 0.1 mg/m³ suggests that operations should be modified; stricter controls and/or other methods of operation should be encouraged until exposures sources are identified and controlled.

> Insurance > Health > Rescue > Environment

The results of your statutory sampling (only) for the period indicated are presented below for underground - longwall, with reference to the relevant specified limit.

Results above specified limits indicate existing control failures require investigation. The primary causes of exceedances have been identified as: ventilation related issues; water suppression issues and operator positioning.

Dust Results - Respirable (Underground - Longwall)

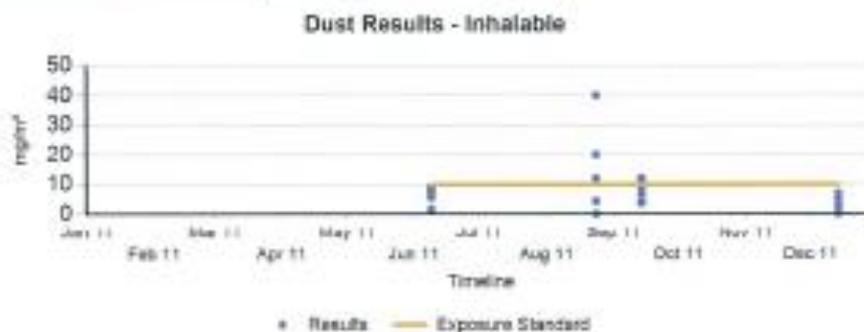


Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and cause pneumoconiosis with long-term repeated over exposure

DHS Recommends

- Respirable Dust exposures < 0.6 mg/m³ indicates controls are satisfactory.
- Exposures > 0.6 mg/m³ but < 1.5 mg/m³, investigation required to assess controls, including PPE.
- Respirable Dust exposure > of 1.5 mg/m³ suggests that operations should be modified, stricter controls and/or other methods of operation should be encouraged until exposures sources are identified and controlled.

Dust Results - Inhalable (Underground - Longwall)



Inhalable dust refers to dust below 100µm in diameter that may reach the upper respiratory tract and exacerbate asthma and bronchitis with elevated exposure

DHS Recommends

- Inhalable Dust exposures < 2.5 mg/m³ indicates controls are satisfactory.
- Exposures > 2.5 mg/m³ but < 5.0 mg/m³, investigation required to assess controls, including PPE.
- Inhalable Dust exposure > of 5.0 mg/m³ suggests that operations should be modified, stricter controls and/or other methods of operation should be encouraged until exposures sources are identified and controlled.

> Insurance > Health > Rescue > Environment

The results of your statutory sampling (only) for the period indicated are presented below for underground - other than longwall, with reference to the relevant specified limit.

Results above specified limits indicate existing control failures require investigation. The primary causes of exceedances have been identified as: ventilation related issues; water suppression issues; and operator positioning.

Dust Results - Respirable (Underground - Other than Longwall)

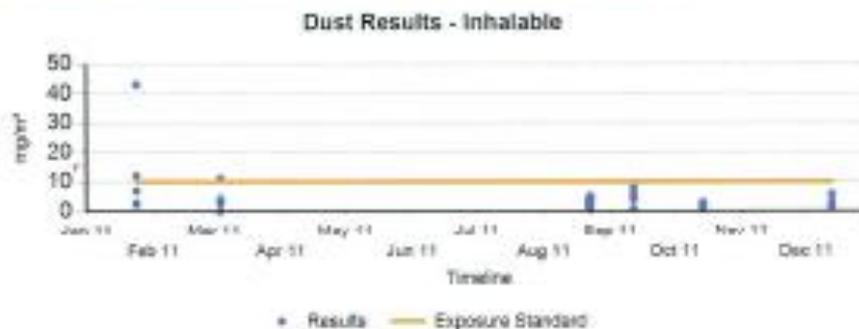


Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and cause pneumoconiosis with long-term repeated over exposure.

OH&S Recommends

- Respirable Dust exposures < 0.6 mg/m³ indicates controls are satisfactory.
- Exposures > 0.6 mg/m³ but < 1.5 mg/m³, investigation required to assess controls, including PPE.
- Respirable Dust exposure > of 1.5 mg/m³ suggests that operations should be modified, stricter controls and/or other methods of operation should be encouraged until exposures sources are identified and controlled.

Dust Results - Inhalable (Underground - Other than Longwall)



Inhalable dust refers to dust below 100µm in diameter that may reach the upper respiratory tract and exacerbate asthma and bronchitis with elevated exposure.

OH&S Recommends

- Inhalable Dust exposures < 2.5 mg/m³ indicates controls are satisfactory.
- Exposures > 2.5 mg/m³ but < 5.0 mg/m³, investigation required to assess controls, including PPE.
- Inhalable Dust exposure > of 5.0 mg/m³ suggests that operations should be modified, stricter controls and/or other methods of operation should be encouraged until exposures sources are identified and controlled.

> Insurance > Health > Rescue > Environment

The results of your statutory sampling (only) for the period indicated are presented below for underground - other than longwall, with reference to the relevant specified limit.

Results above specified limits indicate existing control failures require investigation. The primary causes of exceedances have been identified as: ventilation related issues; water suppression issues; and operator positioning.

Dust Results - Respirable (Underground - Other than Longwall)

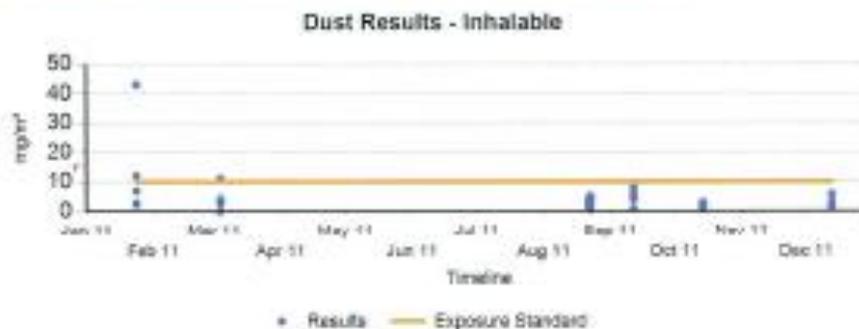


Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and cause pneumoconiosis with long-term repeated over exposure.

OH&S Recommends

- Respirable Dust exposures < 0.6 mg/m³ indicates controls are satisfactory.
- Exposures > 0.6 mg/m³ but < 1.5 mg/m³, investigation required to assess controls, including PPE.
- Respirable Dust exposure > of 1.5 mg/m³ suggests that operations should be modified, stricter controls and/or other methods of operation should be encouraged until exposures sources are identified and controlled.

Dust Results - Inhalable (Underground - Other than Longwall)



Inhalable dust refers to dust below 100µm in diameter that may reach the upper respiratory tract and exacerbate asthma and bronchitis with elevated exposure.

OH&S Recommends

- Inhalable Dust exposures < 2.5 mg/m³ indicates controls are satisfactory.
- Exposures > 2.5 mg/m³ but < 5.0 mg/m³, investigation required to assess controls, including PPE.
- Inhalable Dust exposure > of 5.0 mg/m³ suggests that operations should be modified, stricter controls and/or other methods of operation should be encouraged until exposures sources are identified and controlled.

> Insurance > Health > Rescue > Environment

The results of the analysis for Respirable Crystalline Silica performed upon samples conducted at your mine are presented below, with reference to the specified limit under the NSW gazette notice No. 165 of 2007.

Results above specified limits indicate existing control failures require investigation. The primary causes of exceedances have been identified as: ventilation related issues; water suppression issues; and operator positioning.

Respirable Crystalline Silica (Quartz) (Underground - Longwall)

Quartz Results - Respirable



Respirable Crystalline Silica (RCS) is a group 1 carcinogen (IARC 1997), therefore every effort should be made to reduce exposures to the lowest possible level

Respirable Crystalline Silica (Quartz) (Underground - Other than Longwall)

Quartz Results - Respirable



Respirable Crystalline Silica (RCS) is a group 1 carcinogen (IARC 1997), therefore every effort should be made to reduce exposures to the lowest possible level

DHYS Recommends

- Respirable Crystalline Silica exposure < 0.02 mg/m³ indicates controls are satisfactory.
- Respirable Crystalline Silica exposures > 0.02 mg/m³ but < 0.06 mg/m³, investigation required to assess controls, including PPE.
- Respirable Crystalline Silica exposure > of 0.06 mg/m³ suggests that operations should be modified, stricter controls and/or other methods of operation should be encouraged until exposures sources are identified and controlled.

Additional Information

The attached graphs represent the results of any statutory dust samples that have been undertaken at the site in the past six months. These results include Inhalable and Respirable Dust, Respirable Crystalline Silica as well as any DPM samples that have been conducted at your mine site by Coal Services Pty Ltd Occupational Hygiene Group.

As a result of customer feedback received from the January 2011, **MineCheck** report we have made two changes to the CHyS **MineCheck** report:

- The first change is the new addition of the Respirable Crystalline Silica (Quartz) test results produced.
- The second change is the diesel exposure standard reference that has been updated to International Agency for Research on Cancer (IARC 2012), from US EPA 2002. This represents the most recent published information by the World Health Organisation with respect to diesel exposure.

If any further clarification of results or more information is required, please contact the Coal Industry Act Inspector that services your site. Please find below the direct contact numbers:

Singleton (Hunter Valley)

Mr. Neil Wilson	0428 494 705
Mr. Brad Lambkin	0419 210 721
Mr. Shaun Greer	0417 267 300
Mr. Michael Land	0458 215 131

Lithgow/Western District

Mr. Chris Maw	0428 264 088
Mr. Brett Palmer	0448 463 075
Mr. Malcolm Cliff	0418 373 836

Argenton (Newcastle)

Mr. Mark Shephard	0408 839 928
Mr. Glenn Goodwin	0438 641 569
Mr. John Jennings	0418 271 858
Mr. Michael Land	0458 215 131

Wollongong (Southern)

Mr. Andy Staudacher	0417 480 183
Mr. Lucas Boyne	0411 478 118
Mr. Greg Lalimer	0417 483 853

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Appendix 2 – Coal Dust 2005-2006 Data Summary.

Table 4. Seam

Seam	Count	Seam	Count
Arties	24	Lithgow	526
Barretts	5	Not Supplied	38
Bulli	856	Pikes Gully	262
Fassifern	243	Ravensthorpe	5
Great Northern	343	Ulan	127
Great Northern & Fassifern	5	Wallerah	32
Greta	89	Wambo	68
Irondale	22	West Borehole	597
Katoomba	80	West Wallarah	287
Kayuga	146	Whybrow	251
Liddell	188	Wongawilli	240
Lidsdale	23	Woodlands Hills	138
		MISSING	520

Table 5: District and Seam.

District	Seam	Count
Newcastle	Fassifern	243
Newcastle	Great Northern	343
Newcastle	Great Northern & Fassifern	5
Newcastle	Wallerah	32
Newcastle	West Borehole	597
Newcastle	West Wallarah	287
Newcastle	Not Supplied	33
Singleton	Arties	24
Singleton	Barretts	5
Singleton	Greta	89
Singleton	Kayuga	146
Singleton	Liddell	188
Singleton	Not Supplied	262
Singleton	Pikesgully	5
Singleton	Ravensthorpe	68
Singleton	Wambo	251
Singleton	Whybrow	138
Singleton	Woodlands Hills	387
West Mines	Irondale	22

West Mines	Katoomba	80
West Mines	Lidsdale	23
West Mines	Lithgow	526
West Mines	Ulan	127
Woonona	Bulli	856
Woonona	Wongawilli	240

Table 6: Mine.

Mine	Count	Mine	Count
Appin	264	Invincible Open Cut	9
Ashton Cpp	10	Ivanhoe No 2	5
Ashton O/C	15	Ivanhoe No. 3	12
Ashton U/G	54	Lamberts Gully Open Cut	10
Austar Coal	89	Liddell Cpp	2
Awaba (Cen Newstan Pty Limited)	145	Liddell O/C	16
Baal Bone	182	Macquarie	4
Baal Bone Open Cut	9	Metropolitan	143
Beltana	241	Mt Arthur Coal Pty Limited	13
Bengalla	90	Mt Owen	32
Berrima	5	Mt Thorley Warkworth	11
Bloomfield Cpp	8	Muswellbrook O/C	23
Bloomfield O/C	16	N.R.E. No. 1	45
Boggabri Open Cut (Downer Edi)	5	Narama	18
Bulga	40	Newpac No. 1	176
Camberwell	20	Pine Dale Open Cut	5
Cen Angus Place P/L	110	Ravensworth East	5
Cen Mandalong Pty Ltd- Cooranbong	351	Rixs Creek	19
Cen Mannering P/L (Wyee)	122	Springvale	109
Cen Munmorah Pty Ltd	5	Stratford	23
Cen Myuna Pty Limited	147	Tahmoor	191
Cen Newstan Pty Ltd	277	Tarrawonga Open Cut	14
Chain Valley	170	Tasman	14
Charbon	69	Ulan - Surface Operations	22
Charbon O/C	24	Ulan Cpp	3
Clarence	80	Ulan U/G	81
Cullen Valley Open Cut	27	United	125
Cumnock Sth O/C	35	United Cpp	9
Dartbrook	146	Wambo (O/C)	37

Delta	30	Wambo Cpp	4
Delta Decline	14	Wambo U/G	68
Dendrobium	195	Werris Creek Coal	5
Donaldson O/C	28	Werris Creek Open Cut	7
Drayton O/C	14	West Wallsend	305
Duralie O/C	32	Westcliff	213
Elouera	10	Westside	15
Fassifern Auger Project (Newstan)	7	Whitehaven Cpp	4
Glennies Creek	162	Whitehaven O/C	10
Hunter Valley Cpp	5	Wilpinjong Open Cut (Thiess)	21
Hunter Valley#10/C	29	Wollemi	5

Table 7: District and Mine.

District	Mine	#	District	Mine	#
Newcastle	Awaba	145	Woonona	Appin	264
Newcastle	Bloomfield CPP	8	Woonona	Berrima	5
Newcastle	Bloomfield O/C	16	Woonona	Delta	30
Newcastle	Cen Mandalong - Cooranb	351	Woonona	Dendrobium	195
Newcastle	Cen Mann Wye	122	Woonona	Elouera	10
Newcastle	Cen Munmorah	5	Woonona	Metropolitan	143
Newcastle	Cen Myuna	147	Woonona	N.R.E. No. 1	45
Newcastle	Cen Newstan	277	Woonona	Tahmoor	191
Newcastle	Chain Valley	170	Woonona	Westcliff	213
Newcastle	Delta Decline	14	West Mines	Baal Bone	182
Newcastle	Donaldson O/C	28	West Mines	Baal Bone O/C	9
Newcastle	Duralie O/C	32	West Mines	Cen Angus PI	110
Newcastle	Fassifern Auger Project Newstan	7	West Mines	Charbon	69
Newcastle	Macquarie	4	West Mines	Charbon O/C	24
Newcastle	Stratford	23	West Mines	Clarence	80
Newcastle	Tasman	14	West Mines	Cullen Valley O/C	27
Newcastle	West Wallsend	305	West Mines	Invincible O/C	9
Newcastle	Westside	15	West Mines	Ivanhoe No 2	5
Singleton	Ashton CPP	10	West Mines	Ivanhoe No. 3	12
Singleton	Ashton O/C	15	West Mines	Lamberts Gully O/C	10
Singleton	Ashton U/G	54	West Mines	Pine Dale O/C	5
Singleton	Austar Coal	89	West Mines	Springvale	109
Singleton	Beltana	241	West Mines	Ulan - Surface Operations	22
Singleton	Bengalla	90	West Mines	Ulan CPP	3

Singleton	Boggabri O/C Downer Edi	5	West Mines	Ulan U/G	81
Singleton	Bulga	40	West Mines	Wilpinjong O/C Thiess	21
Singleton	Camberwell	20	Singleton	Newpac No. 1	176
Singleton	Cumnock Sth O/C	35	Singleton	Ravensworth East	5
Singleton	Dartbrook	146	Singleton	Rixs Creek	19
Singleton	Drayton O/C	14	Singleton	Tarrawonga O/C	14
Singleton	Glennies Creek	162	Singleton	United	125
Singleton	Hunter Valley CPP	5	Singleton	United CPP	9
Singleton	Hunter Valley#10/C	29	Singleton	Wambo O/C	37
Singleton	Liddell CPP	2	Singleton	Wambo CPP	4
Singleton	Liddell O/C	16	Singleton	Wambo U/G	68
Singleton	Mt Arthur Coal	13	Singleton	Werris Creek Coal	5
Singleton	Mt Owen	32	Singleton	Werris Creek O/C	7
Singleton	Mt Thorley Warkworth	11	Singleton	Whitehaven CPP	4
Singleton	Muswellbrook O/C	23	Singleton	Whitehaven O/C	10
Singleton	Narama	18	Singleton	Wollemi	5

Table 8: Mine and Seam.

Mine	Seam	#	Mine	Seam	#
Appin	Bulli	264	Elouera	Wongawilli	10
Ashton CPP	Liddell	5	Fassifern Auger Newstan	Great Northern	7
Ashton CPP	Pikes Gully	5	Glennies Creek	Liddell	162
Ashton O/C	Barretts	5	Hunter Valley CPP	.	5
Ashton O/C	Liddell	10	Hunter Valley#10/C	.	29
Ashton U/G	Pikes Gully	54	Invincible O/C	Lidsdale	9
Austar Coal	Greta	89	Ivanhoe No 2	Irondale	5
Awaba	Great Northern	145	Ivanhoe No. 3	Irondale	12
Baal Bone	Lithgow	182	Lamberts Gully O/C	Lidsdale	5
Baal Bone O/C	Lithgow	9	Lamberts Gully O/C	Lithgow	5
Beltana	Whybrow	241	Liddell CPP	.	2
Bengalla	.	90	Liddell O/C	Liddell	6
Berrima	Wongawilli	5	Liddell O/C	.	10
Bloomfield CPP	.	8	Macquarie	.	4
Bloomfield O/C	.	16	Metropolitan	Bulli	143
Boggabri O/C Downer Edi	.	5	Mt Arthur Coal	.	13
Bulga	Whybrow	5	Mt Owen	Arties	15
Bulga	Woodlands Hills	4	Mt Owen	.	17
Bulga	.	31	Mt Thorley Warkworth	.	11

Camberwell	Liddell	5	Muswellbrook O/C	.	23
Camberwell	.	15	N.R.E. No. 1	Bulli	45
Cen Angus PI	Lithgow	110	Narama	.	18
Cen Mandalong - Coora	Wallahah	32	Newpac No. 1	Pikes Gully	176
Cen Mandalong - Coora	West Borehole	23	Pine Dale O/C	Lithgow	5
Cen Mandalong - Coora	West Wallarah	287	Ravensworth East	Ravensworth	5
Cen Mandalong - Coora	.	9	Rixs Creek	Arties	9
Cen Mann Wyee	Fassifern	122	Rixs Creek	Pikes Gully	10
Cen Munmorah	Great Northern	5	Springvale	Lithgow	109
Cen Myuna	Fassifern	87	Stratford	.	23
Cen Myuna	Great Northern	60	Tahmoor	Bulli	191
Cen Newstan	Great Northern	5	Tarrowonga O/C	.	14
Cen Newstan	West Borehole	269	Tasman	Fassifern	14
Cen Newstan	.	3	Ulan - Surface Operations	Ulan	22
Chain Valley	Fassifern	10	Ulan CPP	Ulan	3
Chain Valley	Great Northern	121	Ulan U/G	Ulan	81
Chain Valley	.	39	United	Woodlands Hills	125
Charbon	Lithgow	69	United CPP	Woodlands Hills	9
Charbon O/C	Lithgow	24	Wambo O/C	.	37
Clarence	Katoomba	80	Wambo CPP	.	4
Cullen Valley O/C	Irondale	5	Wambo U/G	Wambo	68
Cullen Valley O/C	Lidsdale	9	Werris Creek Coal	.	5
Cullen Valley O/C	Lithgow	13	Werris Creek O/C	.	7
Cumnock Sth O/C	Pikes Gully	17	West Wallsend	West Borehole	305
Cumnock Sth O/C	.	18	Westcliff	Bulli	213
Dartbrook	Kayuga	146	Westside	Fassifern	10
Delta	Wongawilli	30	Westside	Grt Nthn & Fass	5
Delta Decline	.	14	Whitehaven CPP	.	4
Dendrobium	Wongawilli	195	Whitehaven O/C	.	10
Donaldson O/C	.	28	Wilpinjong O/C Thiess	Ulan	21
Drayton O/C	.	14	Wollemi	Whybrow	5
Duralie O/C	.	32			

Table 9: Mine and Mine Type.

Mine	Mine Type	#	Mine	Mine Type	#
Appin	U/G - Longwall	75	Glennies Creek	U/G - Longwall	85
Appin	U/G - notLongwall	189	Glennies Creek	U/G - notLongwall	77
Ashton CPP	O/C, Washeries, Load	10	Hunter Valley CPP	O/C, Washeries, Load	5

Ashton O/C	O/C, Washeries, Load	15	Glennies Creek	U/G - Longwall	85
Ashton U/G	U/G - notLongwall	54	Invincible O/C	O/C, Washeries, Load	9
Austar Coal	O/C, Washeries, Load	9	Ivanhoe No 2	U/G - notLongwall	5
Austar Coal	U/G - Longwall	10	Glennies Creek	U/G - Longwall	85
Austar Coal	U/G - notLongwall	70	Lamberts Gully O/C	O/C, Washeries, Load	10
Awaba	U/G - notLongwall	145	Glennies Creek	U/G - Longwall	85
Baal Bone	O/C, Washeries, Load	12	Liddell O/C	O/C, Washeries, Load	16
Baal Bone	U/G - Longwall	117	Macquarie	O/C, Washeries, Load	4
Baal Bone	U/G - notLongwall	53	Metropolitan	O/C, Washeries, Load	4
Baal Bone O/C	O/C, Washeries, Load	9	Metropolitan	U/G - Longwall	90
Beltana	U/G - Longwall	152	Metropolitan	U/G - notLongwall	49
Beltana	U/G - notLongwall	89	Mt Arthur Coal	O/C, Washeries, Load	13
Bengalla	O/C, Washeries, Load	90	Mt Owen	O/C, Washeries, Load	32
Berrima	U/G - notLongwall	5	Mt Thorley Warkworth	O/C, Washeries, Load	11
Bloomfield CPP	O/C, Washeries, Load	8	Muswellbrook O/C	O/C, Washeries, Load	23
Bloomfield O/C	O/C, Washeries, Load	16	N.R.E. No. 1	U/G - notLongwall	45
Boggabri Downer Edi	O/C, Washeries, Load	5	Narama	O/C, Washeries, Load	18
Bulga	O/C, Washeries, Load	40	Newpac No. 1	U/G - notLongwall	176
Camberwell	O/C, Washeries, Load	20	Pine Dale O/C	O/C, Washeries, Load	5
Cen Angus PI	O/C, Washeries, Load	2	Ravensworth East	O/C, Washeries, Load	5
Cen Angus PI	U/G - Longwall	55	Rixs Creek	O/C, Washeries, Load	19
Cen Angus PI	U/G - notLongwall	53	Springvale	O/C, Washeries, Load	5
Cen Man - Coora	U/G - Longwall	97	Springvale	U/G - Longwall	58
Cen Man - Coora	U/G - notLongwall	254	Springvale	U/G - notLongwall	46
Cen Man Wyee	U/G - notLongwall	122	Stratford	O/C, Washeries, Load	23
Cen Munmorah	U/G - notLongwall	5	Tahmoor	O/C, Washeries, Load	6
Cen Myuna	U/G - notLongwall	147	Tahmoor	U/G - Longwall	55
Cen Newstan	O/C, Washeries, Load	19	Tahmoor	U/G - notLongwall	130
Cen Newstan	U/G - Longwall	131	Tarrowonga O/C	O/C, Washeries, Load	14
Cen Newstan	U/G - notLongwall	127	Tasman	U/G - notLongwall	14
Chain Valley	O/C, Washeries, Load	2	Ulan - Surface Oper	O/C, Washeries, Load	22
Chain Valley	U/G - notLongwall	168	Ulan CPP	O/C, Washeries, Load	3
Charbon	O/C, Washeries, Load	5	Ulan U/G	U/G - Longwall	35
Charbon	U/G - notLongwall	64	Ulan U/G	U/G - notLongwall	46
Charbon O/C	O/C, Washeries, Load	24	United	U/G - Longwall	70
Clarence	O/C, Washeries, Load	10	United	U/G - notLongwall	55
Clarence	U/G - notLongwall	70	United CPP	O/C, Washeries, Load	9
Cullen Valley O/C	O/C, Washeries, Load	27	Wambo O/C	O/C, Washeries, Load	37
Cumnock Sth O/C	O/C, Washeries, Load	35	Wambo CPP	O/C, Washeries, Load	4

Dartbrook	O/C, Washeries, Load	5	Wambo U/G	U/G - notLongwall	68
Dartbrook	U/G - Longwall	102	Werris Creek Coal	O/C, Washeries, Load	5
Dartbrook	U/G - notLongwall	39	Werris Creek O/C	O/C, Washeries, Load	7
Delta	U/G - Longwall	15	West Wallsend	U/G - Longwall	102
Delta	U/G - notLongwall	15	West Wallsend	U/G - notLongwall	203
Delta Decline	U/G - notLongwall	14	Westcliff	O/C, Washeries, Load	3
Dendrobium	U/G - Longwall	55	Westcliff	U/G - Longwall	100
Dendrobium	U/G - notLongwall	140	Westcliff	U/G - notLongwall	110
Donaldson O/C	O/C, Washeries, Load	28	Westside	O/C, Washeries, Load	15
Drayton O/C	O/C, Washeries, Load	14	Whitehaven CPP	O/C, Washeries, Load	4
Duralie O/C	O/C, Washeries, Load	32	Whitehaven O/C	O/C, Washeries, Load	10
Elouera	U/G - Longwall	10	Wilpinjong Thiess	O/C, Washeries, Load	21
Fassifern Auger Newstan	O/C, Washeries, Load	7	Wollemi	U/G - notLongwall	5

Table 10: Location.

3 Tg Panel	804 Panel	Loddon Panel	Mgate 3
0 Panel	804 Panel Left	Lower Pikes Gully Bench	Mj03
1 East	810 Panel	Ls18, Is13, In23, Rom	Mk04, MI02, West Pit
1 East SEe Plan	810 Panel Left	LW	NEbo Mains
1 South	810 Panel Right	LW 1	NEbo Mains Beavers
1 South Panel	813 Panel	LW 10	NEbo Mains Hornets
10 NW	814 Panel	LW 11	NEbo Mains Redbacks
10 NW Panel	817 Panel	LW 12	NEbo Mains Whippets
100 District	819 Panel	LW 12 Face @ 1206m Mark Mg	NEwcastle West Drift Trav Rd
100 Mains	821 Panel	LW 13	Ninth Ramp
100 Panel	9 NE	LW 14	Nno4,
100 Panel Left	9 Trunk	LW 14 Face	North 2
100 Panel Right	900	LW 17 Instal	North 2 Development
11 NW	900 Left	LW 2	North Panel
110 Panel	900 Panel	LW 21	North Pre-Strip, Bay 2 Coal, Washery
15 C/T Diesel Bay	900 Panel Left	LW 22	North Switch Back & Washery
15 South Panel	900 Right	LW 23	Nth 2
16 South	901 Panel	LW 23 1677m	NW
16 South Panel	923 South R2 Midburden	LW 23 1687m	NW Hdg
17 South	926 Shot V1 Shot	LW 23 A	NW Mains
18 South	928 North	LW 23b	NW Mg 33

18 South 2	930	LW 24	NW Panel
2 B Panel	930 Hdg	LW 24 411	NWt, SE3 & In Pit Dump
2 East	930 LW	LW 25	O Panel
2 East Hdg	930 Panel	LW 26	O Panel - Face At E - F C/T 20m In 3 Line
2 Hdg Single Entry	930 Return	LW 27 920	O-Mains Panel
2 NE	940 Panel	LW 3	O/Bye Crews
2 NE A	9ne	LW 30	O/C
2 NE B	A Hdg	LW 301	O/C Blackmans Flat
2 South	A Hdg Mains	LW 31	O/C Shotfirers
2 West	A Hdg SE Hdg	LW 32	O/C Shotfirerss
2 West Panel	A Portal Drivage	LW 33	Outbye
200 Panel	A1 Panel	LW 4	P Panel
202 Panel	A1 Tg	LW 407	P/G 28
204 Presplit	Auger Project	LW 408	P5
210 Panel	B Hdg	LW 410	Panel 614
254 - Coal, 27.9 Overburden	B Hdg 1 - 2 C/T 40m	LW 411	Pillar Panel 2
2ne	B Hdg Inbye	LW 5	Pillar Panel 3
3 SE	B West Panel	LW 6	Plant & General Plant Area
300 Panel	B15 Panel	LW 6 - 760m - Red Crew	Portal 3 Return
301 LW	B5 35 RI	LW 6 1141m Green Crew	Portal C Hdg
301 Mg Panel	B5, B6, Nb5	LW 6 1462m Yellow Crew	Pp4
301 Tg	B7,	LW 6 1616m Blue Crew	Pp5
301 Tg Panel	Backbye	LW 6 1850m Red Crew	Pp6
302 Install Panel	Backbye - LW 5	LW 6 2116m Green Crew	Pp6 Development
302 Mgate Panel	Backbye 20 Ct Mains	LW 6 2366m Yellow Crew	Prep.Plant,NEw Module Assembly Area,Stockpile,Tailings Dam
310 Tg Panel	Backbye Districts 1, 2 & 3	LW 6 2680m Blue Crew	R Panel
331 Panel	Bate 6 Shot Bench	LW 6 Tg	R3 - 4
332 Panel	Bates 13	LW 7	Ramp 12
35 RI - 10	Bates 3	LW 7 2330m Red Crew	Ramp 2
4 Hdg	Bates 5 Partings	LW 930	Raw Coal & In Washery
400 Development	Bates 7, 8 & 10	LW A1	Removal Of Overburden
400 Panel F Hdg	Bates 8	LW Bleeder Hdg	Riverview, 343, Pit, Pit 2, RI35 South Claystone

403 Panel	Belt & Travel Road Inspection	LW Ka 102	Riverview, Carrington
408 A	Bench 210	LW Ka101	S Panel
408 A Cm 46	Bin Area	LW Ka102	SE Hdg
408 B	C Hdg	LW Ka103	SE Mains
408 B Cm 49	Cataract Panel	LW23	SE3
408 Panel	Cheshunt	LW23 1640m	SE3 Mains
411 Development	Chitter Dump	LW8 Access Road	Shotfirers
412 A Hdg	Chpp	M/South	Shotfirers At Strip 16 Block 17
412 B Hdg	Chpp & Workshop	Main Hdg	Shotfiring, Surveying & Stemming
412 Development	Chpp, Coal Stockpile	Main South	So71 Bench
412 Panel	Clarence Chpp	Main South Panel	South Mains
412 Panel Right	Coal Handling Preparation Plant	Main West	South Pre-Strip
414 Development Panel	CPP	Main West Hdg	South Prestrip Loader
422 LW Development Panel	Crusher	Mains	South Pump
422 Panel	Crusher - Lamberts Gully	Mains Hdg	Southern Extension Shotfirers
423	Crusher Pad	Mains Hdg Sq9	Strip 2
502 Panel	Crushing Plant	Mg 1	Strip 3 Ulld
503 Panel	Crushing Plant & Coal Loading Facility	Mg 10	Strip 7b
504 Panel	Cullen Valley O/C	Mg 13 Panel	Surface Mobile Wash Plant
518 Area	Decline, Depth Of 500m	Mg 14 Panel	Surface Prep. Plant
518 L Panel	Delta Drift	Mg 2	Surface Subsidence Area
518 R Panel	Delta Hdg	Mg 20	SW
518 SEction	Douglas Intakes	Mg 20 Panel	SW 3
519 Panel	Douglas Returns Panel	Mg 22	SW 5
519 Panel L	Douglas Workings	Mg 23	SW Hdg
519 Panel Left	Drift	Mg 23 A Hdg	SW Panel
519 Panel Right	Drift - 510m	Mg 23 B Hdg	SW3
520 Panel Left	Erection Yard	Mg 24	SW5
520 Panel Right	Fassi M/South	Mg 26	T Panel
6 Hdg C/T 12 East	Fassifern Conveyor Drift	Mg 2a	Tahmoor Washery
602 Panel	Fassifern Conveyor Road	Mg 2a Panel	Tarrawonga Ob 801
609 B Hdg	Fassifern Drift	Mg 3	Tg 1
611 A Panel	Fassifern Pit Bottom	Mg 3 Panel	Tg 26 C Hdg
611c	Fassifern Transport Drift	Mg 302	Tg 3 Panel
612 Panel	Fassifern Ventilation Drift	Mg 32	Tg West 1

614 Panel	Fn1402	Mg 33	U/G
640 Panel	General Roads	Mg 34	Ulan O/C - Washery/Workshop
640 Panel Drift	Gmc	Mg 34 X Cut	Vaux Interburden
644 Panel	In Pit	Mg 35 X Cuts	W1 Ramp
651 Panel	In Pit & CPP	Mg 4	Washery
652 Panel	Inbye Dummy Tg Panel	Mg 4 Belt Road	Washery Chpp
661 Panel	Interburden Shot Block 1	Mg 4 Travel Road	Washing Plant
662 Panel	Ka 103	Mg 5	West Pit
7 SW	Ka 103 LW	Mg 5 To Mg 6 Access Road	Woodlands Hill
702 Mg	Ka 104	Mg 6	Workshop
702 Panel	Ka102 LW	Mg 7	Wyong 22
8 NE	Ka103	Mg 7 B Hdg 25 - 26 C/T Yellow Crew	
8 SW	Ka103 LW	Mg 7 B Hdg 29 - 31 C/T Green	
8 Trunk 2 Hdg	Ka104	Mg 7 LW 7 Install Face Red	
803 L Panel	Kemira Mains	Mg 8	
803 Panel	Lemington Bench	Mg 8 Recovery Road	
803 R Panel	Lemington Bench Shot # 230 U40	Mg A1	

Table 11: Mine and Location.

Mine	Location	#	Mine	Location	#
Appin	301 L/Wall	5	Delta	L/W 14 Face	5
Appin	301 Maingate Panel	5	Delta	Longwall 14	10
Appin	301 T/G	5	Delta	Longwall 17 Instal	5
Appin	301 Tailgate Panel	5	Delta	Maingate 13 Panel	5
Appin	302 Install Panel	5	Delta	Maingate 14 Panel	5
Appin	302 Installation Panel	5	Delta Decline	Decline, Depth Of 500m	5
Appin	302 M/Gate Panel	5	Delta Decline	Drift	5
Appin	310 Tailgate Panel	5	Delta Decline	Drift - 510m	4
Appin	408 A	4	Dendrobium	2 B Panel	5
Appin	408 A Cm 46	2	Dendrobium	Kemira Mains	5
Appin	408 B	4	Dendrobium	L/Wall	5
Appin	408 BCm 49	2	Dendrobium	Longwall 1	20
Appin	408 Panel	12	Dendrobium	Longwall 2	5
Appin	702 Maingate	6	Dendrobium	Longwall No. 1	10
Appin	702 Panel	7	Dendrobium	Longwall No. 2	15
Appin	Cataract Panel	5	Dendrobium	M/G 3 Panel	5
Appin	Douglas Intakes	15	Dendrobium	M/Gate 3	5

Appin	Douglas Return Panel	5	Dendrobium	Maingate 2	5
Appin	Douglas Returns Panel	25	Dendrobium	Maingate 2a	10
Appin	Douglas Workings	2	Dendrobium	Maingate 2a Panel	5
Appin	L/Wall 301	5	Dendrobium	Maingate 3	10
Appin	Loddon Panel	25	Dendrobium	Maingate 3 Panel	10
Appin	Longwall 301	5	Dendrobium	N/West Mains	10
Appin	Longwall 407	15	Dendrobium	Nebo Mains	5
Appin	Longwall 408	45	Dendrobium	Nebo Mains Beavers	5
Appin	Maingate 20	5	Dendrobium	Nebo Mains Hornets	5
Appin	Maingate 20 Panel	10	Dendrobium	Nebo Mains Redbacks	5
Appin	Maingate 302	5	Dendrobium	Nebo Mains Whippets	5
Appin	North Panel	20	Dendrobium	No. 3 Tailgate Panel	10
Ashton CPP	Chpp	5	Dendrobium	North West Mains	20
Ashton CPP	Prep.Plant,New Module AssArea,Stockpile,Tailings Dam	5	Dendrobium	Tailgate 3 Panel	15
Ashton O/C	Strip 2	5	Donaldson O/C	O/Cut	4
Ashton O/C	Strip 3 Uild	5	Donaldson O/C	O/C	21
Ashton O/C	.	5	Donaldson O/C	Shotfiring, Surveying And Stemming	3
Ashton U/G	'A' HeadingSe Headings	5	Drayton O/C	Chpp	4
Ashton U/G	'A' Portal Drivage	5	Drayton O/C	Nno4,	5
Ashton U/G	M/G 1	5	Drayton O/C	.	5
Ashton U/G	Portal 'C' Heading	5	Duralie O/C	O/C	32
Ashton U/G	Se Headings	5	Elouera	Longwall 10	10
Ashton U/G	Tailgate 1	29	Fassifern Auger Newstan	Crushing Plant	2
Austar Coal	'B' Heading Inbye	5	Fassifern Auger Newstan	Strip 7b	5
Austar Coal	100 Mains	15	Glennies Creek	L/W 7	14
Austar Coal	100 Panel	10	Glennies Creek	Longwall 5	15
Austar Coal	A1 Panel	5	Glennies Creek	Longwall 6	32
Austar Coal	A1 Tailgate	10	Glennies Creek	Longwall 6 Tailgate	3
Austar Coal	Backbye Districts 1, 2 & 3	5	Glennies Creek	Longwall 7	24
Austar Coal	Chpp	5	Glennies Creek	M/G 8	5
Austar Coal	L/W A1	10	Glennies Creek	Maingate 6	5
Austar Coal	Maingate A1	20	Glennies Creek	Maingate 7	29
Austar Coal	Surface Prep. Plant	4	Glennies Creek	North West Mains	25
Awaba	10 North West	5	Glennies Creek	NwMains	5
Awaba	10 North West Panel	4	Glennies Creek	Nw Mains	5
Awaba	11 North West	9	Hunter Valley CPP	Coal Preparation Plant	5
Awaba	15 South Panel	4	Hunter	Cheshunt	5

Awaba	16 South	24	Valley#1O/C Hunter Valley#1O/C	R3 - 4	5
Awaba	16 South Panel	5	Hunter Valley#1O/C	Riverview, 343, Pit, Pit 2, RI35 South Claystone	10
Awaba	17 South	25	Hunter Valley#1O/C	Riverview, Carrington	4
Awaba	18 South	15	Hunter Valley#1O/C	W1 Ramp	5
Awaba	18 South 2	20	Invincible O/C	O/C	5
Awaba	18 Sth 2	4	Invincible O/C	.	4
Awaba	7 South West	10	Ivanhoe No 2	4 Heading	5
Awaba	7 Sw	5	Ivanhoe No. 3	110 Panel	4
Awaba	8 South West	10	Ivanhoe No. 3	6 Heading C/T 12 East	4
Awaba	8 Sw	5	Ivanhoe No. 3	.	4
Baal Bone	2 East	9	Lamberts Gully O/C	O/C	10
Baal Bone	2 East Heading	5	Liddell CPP	Coal Preparation Plant	2
Baal Bone	Chpp	7	Liddell O/C	So71 Bench	6
Baal Bone	L/W 25	5	Liddell O/C	.	10
Baal Bone	Longwall 23	10	Macquarie	Chpp	4
Baal Bone	Longwall 24	72	Metropolitan	'R' Panel	10
Baal Bone	Longwall 24 411	10	Metropolitan	B - West Panel	5
Baal Bone	Longwall 25	35	Metropolitan	B West Panel	10
Baal Bone	Longwall 26	5	Metropolitan	B/West Panel	10
Baal Bone	Lw 25	5	Metropolitan	L/Wall 14	15
Baal Bone	Maingate 26	9	Metropolitan	Longwall 11	15
Baal Bone	Tailgate 26 'C' Hdg	5	Metropolitan	Longwall 12	25
Baal Bone	Washery Chpp	5	Metropolitan	Longwall 12 Face @ 1206m Mark Maingate	5
Baal Bone O/C	O/C	7	Metropolitan	Longwall 13	20
Baal Bone O/C	Shotfirers	2	Metropolitan	Longwall 14	10
Beltana	L/W 7 2330m'Red Crew'	5	Metropolitan	R Panel	4
Beltana	Longwall 3	14	Metropolitan	S Panel	5
Beltana	Longwall 4	54	Metropolitan	T Panel	5
Beltana	Longwall 5	44	Metropolitan	Washery	4
Beltana	Longwall 6	5	Mt Arthur Coal	Coal Handling Preparation Plant	4
Beltana	Longwall 6 2366m'Yellow' Crew	5	Mt Arthur Coal	Fn1402	4
Beltana	Longwall 61462m'Yellow' Crew	5	Mt Arthur Coal	Is18, Is13, In23, Rom	5
Beltana	Longwall 6 2680m'Blue' Crew	5	Mt Owen	35 RI - 10	5

Beltana	Longwall 61141m'Green' Crew	5	Mt Owen	B535 RI	5
Beltana	Longwall 6 1850m 'Red' Crew	5	Mt Owen	B5, B6, Nb5	5
Beltana	Longwall 6 2116m 'Green' Crew	5	Mt Owen	Chpp	5
Beltana	Longwall 6 1616m 'Blue Crew'	4	Mt Owen	West Pit	5
Beltana	Longwall 6 - 760m - Red Crew	5	Mt Owen	.	7
Beltana	Lw8 Access Road	4	Mt Thorley Warkworth	Gmc	5
Beltana	M/G 8	5	Mt Thorley Warkworth	Workshops	6
Beltana	Maingate 5	6	Muswellbrook O/C	204Presplit	5
Beltana	Maingate 5 To Maingate 6 Access Road	5	Muswellbrook O/C	In Pit And Coal Preparation Plant	8
Beltana	Maingate 6	15	Muswellbrook O/C	Nwt,Se3 And In Pit Dump	5
Beltana	Maingate 7	5	Muswellbrook O/C	O/C	5
Beltana	Maingate 7'B' Heading25 - 26 C/T'Yellow' Crew	5	N.R.E. No. 1	0 Panel	5
Beltana	Maingate 7Longwall 7 Installation Face 'Red'	5	N.R.E. No. 1	210 Panel	10
Beltana	Maingate 7'B' Heading29 - 31 C/T 'Green'	5	N.R.E. No. 1	O Panel	5
Beltana	Maingate 8	10	N.R.E. No. 1	O Panel - Face At E - F C/T 20m In 3 Line	5
Beltana	Maingate 8 Recovery Road	5	N.R.E. No. 1	O-Mains Panel	10
Beltana	Mg 10	5	N.R.E. No. 1	P Panel	10
Beltana	Mg 8	5	Narama	923 South R2 Midburden	5
Bengalla	Erection Yard	9	Narama	926 ShotV1 Shot	5
Bengalla	North Pre-Strip, Bay 2 Coal, Washery	10	Narama	928 North	3
Bengalla	North Switch Back And Washery	6	Narama	Ninth Ramp	5
Bengalla	Shottfirsers At Strip 16 Block 17	10	Newpac No. 1	M/G 1	10
Bengalla	South Pre-Strip	10	Newpac No. 1	P5	20
Bengalla	South Prestrip Loader	10	Newpac No. 1	Pillar Panel 2	4
Bengalla	South Pump	6	Newpac No. 1	Pillar Panel 3	4
Bengalla	Vaux Interburden	10	Newpac No. 1	Pp4	10
Bengalla	.	19	Newpac No. 1	Pp5	5
Berrima	403 Panel	5	Newpac No. 1	Pp6	15
Bloomfield CPP	Coal Preparation Plant	4	Newpac No. 1	Pp6 Development	10
Bloomfield CPP	CPP	4	Newpac No. 1	Se Mains	19
Bloomfield O/C	O/C	16	Newpac No. 1	South East Mains	10
Boggabri O/C Downer Edi	.	5	Newpac No. 1	South Mains	5
Bulga	254 - Coal, 27.9 Overburden	5	Newpac No. 1	South West 3	5

Bulga	Chpp	10	Newpac No. 1	Surface Mobile Wash Plant	6
Bulga	Ramp 12	7	Newpac No. 1	Sw 5	9
Bulga	Ramp 2	4	Newpac No. 1	Sw3	5
Bulga	Southern Extension Shotfirers	5	Newpac No. 1	Sw5	15
Bulga	Woodlands Hill	4	Newpac No. 1	T/G 1	5
Bulga	Workshop	5	Newpac No. 1	Tailgate 1	19
Camberwell	Bench 210	5	Pine Dale O/C	O/C Blackmans Flat	5
Camberwell	Chpp	3	Ravensworth East	West Pit	5
Camberwell	General Roads	5	Rixs Creek	Chpp	4
Camberwell	O/C	4	Rixs Creek	Mj03	5
Camberwell	Washery	3	Rixs Creek	Mk04, MI02, West Pit	5
Cen Angus PI	900	5	Rixs Creek	P/G 28	5
Cen Angus PI	900 Panel	5	Springvale	400 Development	10
Cen Angus PI	930	5	Springvale	400 Panel'F' Heading	5
Cen Angus PI	930 Heading	1	Springvale	411 Development	5
Cen Angus PI	930 Longwall	10	Springvale	412 'A' Heading	5
Cen Angus PI	930 Panel	5	Springvale	412 'B' Heading	5
Cen Angus PI	930 Return	3	Springvale	412 Development	5
Cen Angus PI	940 Panel	29	Springvale	412 Panel	5
Cen Angus PI	Chpp	2	Springvale	412 Panel Right	5
Cen Angus PI	L/W 930	6	Springvale	414 Developmt Panel	1
Cen Angus PI	Longwall 27920	5	Springvale	Chpp	2
Cen Angus PI	Longwall 27 920	14	Springvale	Crusher - Lamberts GI	3
Cen Angus PI	Longwall 930	20	Springvale	Longwall 410	33
Cen Mand- Coora	15 C/T Diesel Bay	2	Springvale	Longwall 411	25
Cen Mand- Coora	2 Heading Single Entry	5	Stratford	Chpp	4
Cen Mand- Coora	Belt Travel Rd Inspection	3	Stratford	Coal Preparation Plant	4
Cen Mand- Coora	Bin Area	2	Stratford	O/Cut	5
Cen Mand- Coora	Delta Drift	2	Stratford	O/C	10
Cen Mand- Coora	Delta Heading	5	Tahmoor	803 'L' Panel	5
Cen Mand- Coora	Delta Headings	20	Tahmoor	803 'R' Panel	5
Cen Mand- Coora	Drift	9	Tahmoor	803 Panel	5
Cen Mand- Coora	Longwall 1	23	Tahmoor	804 Panel	15
Cen Mand- Coora	Longwall 2	43	Tahmoor	804 Panel Left	5
Cen Mand- Coora	Longwall 3	31	Tahmoor	810 Panel	25
Cen Mand- Coora	Longwall 4	9	Tahmoor	810 Panel Left	5
Cen Mand- Coora	Longwall Bleeder Heading	3	Tahmoor	810 Panel Right	5
Cen Mand- Coora	M/G 5	15	Tahmoor	813 Panel	10
Cen Mand- Coora	Maingate 2	14	Tahmoor	814 Panel	5

Cen Mand- Coora	Maingate 3	34	Tahmoor	900 'Left'	5
Cen Mand- Coora	ZMaingate 4	49	Tahmoor	900 'Right'	5
Cen Mand- Coora	Maingate 4Belt Road	5	Tahmoor	900 Panel	30
Cen Mand- Coora	Maingate 4 Travel Road	5	Tahmoor	900 Panel Left	5
Cen Mand- Coora	Maingate 5	15	Tahmoor	Longwall22	5
Cen Mand- Coora	Mains	5	Tahmoor	Longwall 22	15
Cen Mand- Coora	Mains Hdg	5	Tahmoor	Longwall 23	10
Cen Mand- Coora	Mains Hdg Sq9	5	Tahmoor	Longwall 23 'A'	5
Cen Mand- Coora	Mains Hdgs	5	Tahmoor	Longwall 23b	15
Cen Mand- Coora	Mains Heading	12	Tahmoor	Longwall 24	5
Cen Mand- Coora	Mains Headings	5	Tahmoor	Tahmoor Washery	2
Cen Mand- Coora	Mg 5	5	Tahmoor	Washing Plant	4
Cen Mand- Coora	O/Bye Crews	5	Tarrawonga O/C	In Pit	5
Cen Mand- Coora	Underground	10	Tarrawonga O/C	Tarrawonga Ob 801	4
Cen Mann Wye	100 District	5	Tarrawonga O/C	.	5
Cen Mann Wye	100 Panel	34	Tasman	'B' Heading	5
Cen Mann Wye	100 Panel Left	19	Tasman	'B' Heading 1 - 2 C/T 40m	4
Cen Mann Wye	100 Panel Right	26	Tasman	'C' Hdg	5
Cen Mann Wye	200 Panel	19	Ulan - Surface Op	O/CutShot Firers	4
Cen Mann Wye	202 Panel	10	Ulan - Surface Op	O/C	13
Cen Mann Wye	300 Panel	9	Ulan - Surface Op	Ulan O/C- Washery / Workshop	5
Cen Munmorah	Wyong 22	5	Ulan CPP	Chpp & Workshop	3
Cen Myuna	1 East	5	Ulan U/G	Longwall 21	10
Cen Myuna	1 East See Plan	2	Ulan U/G	Longwall 22	26
Cen Myuna	1 South	10	Ulan U/G	Maingate 22	5
Cen Myuna	1 South Panel	5	Ulan U/G	Maingate 23	12
Cen Myuna	2 South	15	Ulan U/G	Manigate 22	4
Cen Myuna	2 West	10	Ulan U/G	North 2	10
Cen Myuna	2 West Panel	2	Ulan U/G	North 2 Development	5
Cen Myuna	640 Panel	10	Ulan U/G	Nth 2	4
Cen Myuna	640 Panel Drift	5	Ulan U/G	Tailgate West 1	5
Cen Myuna	644 Panel	4	United	422 Longwall Development Panel	5
Cen Myuna	651 Panel	10	United	422 Panel	5
Cen Myuna	652 Panel	11	United	423	20
Cen Myuna	661 Panel	5	United	Backbye	5
Cen Myuna	662 Panel	15	United	Backbye - Longwall 5	5
Cen Myuna	Fassi M/South	3	United	L/W 5	15
Cen Myuna	M/South	8	United	Longwall 4	15

Cen Myuna	Main South	25	United	Longwall 5	40
Cen Myuna	Main South Panel	2	United	Se3	5
Cen Newstan	Auger Project	5	United	Se3 Mains	10
Cen Newstan	Coal Preparation Plant	2	United CPP	Chpp	4
Cen Newstan	L/W 23	5	United CPP	Chpp, Coal Stockpile	5
Cen Newstan	Longwall 22	68	Wambo O/C	B7,	5
Cen Newstan	Longwall 23	25	Wambo O/C	Bate 6 Shot Bench	2
Cen Newstan	Longwall 23b	5	Wambo O/C	Bates 13	4
Cen Newstan	Lw 23	14	Wambo O/C	Bates 3	5
Cen Newstan	Lw 23 1677m	4	Wambo O/C	Bates 5 Partings	3
Cen Newstan	Lw 23 1687m	5	Wambo O/C	Bates 7, 8 & 10	5
Cen Newstan	Lw23	5	Wambo O/C	Bates 8	3
Cen Newstan	Lw23 1640m	5	Wambo O/C	Chitter Dump	6
Cen Newstan	Main West	15	Wambo O/C	Raw Coal + In Washery	4
Cen Newstan	Main West Headings	5	Wambo CPP	Plant + General Plant Area	4
Cen Newstan	Maingate 23	28	Wambo U/G	'A' Heading	10
Cen Newstan	Maingate 23 'A' Heading	5	Wambo U/G	'C' Heading	10
Cen Newstan	Maingate 23'B' Heading	5	Wambo U/G	A Heading Mains	5
Cen Newstan	Maingate 24	30	Wambo U/G	M/G 1	5
Cen Newstan	S/West Hdgs	3	Wambo U/G	Main Headings	4
Cen Newstan	S/West Headings	3	Wambo U/G	Portal No. 3 Return	5
Cen Newstan	South West 3	10	Wambo U/G	Tailgate 1	29
Cen Newstan	South West Headings	13	Werris Creek Coal	Crushing Plant And Coal Loading Facility	5
Cen Newstan	Surface Subsidence Area	3	Werris Creek O/C	.	7
Cen Newstan	Underground	5	West Wallsend	L/W 33	8
Cen Newstan	Washery	9	West Wallsend	L/Wall 33	5
Chain Valley	2 Ne	5	West Wallsend	Longwall 31	43
Chain Valley	2 North East	24	West Wallsend	Longwall 32	35
Chain Valley	2 North East A	9	West Wallsend	Longwall 33	32
Chain Valley	2 North East B	5	West Wallsend	M/G 35 X Cuts	5
Chain Valley	2ne	10	West Wallsend	Maingate 32	15
Chain Valley	3 South East	10	West Wallsend	Maingate 33	37
Chain Valley	8 North East	13	West Wallsend	Maingate 34	40
Chain Valley	9 Ne	18	West Wallsend	Maingate 34 X Cut	3
Chain Valley	9 North East	15	West Wallsend	Maingate 35 X Cuts	5
Chain Valley	9ne	10	West Wallsend	N/West Maingate 33	5
Chain Valley	Chpp	1	West Wallsend	N/West Panel	5
Chain Valley	Coal Preparation Plant	1	West Wallsend	Ntle Wst Drift Trav Rd	4
Chain Valley	Fassifern Conveyor Drift	11	West Wallsend	North West	30

Chain Valley	Fassifern Conveyor Road	5	West Wallsend	North West Headings	5
Chain Valley	Fassifern Drift	2	West Wallsend	North West Panel	5
Chain Valley	Fassifern Pit Bottom	5	West Wallsend	S/West Panel	5
Chain Valley	Fassifern Transport Drift	17	West Wallsend	South West	5
Chain Valley	Fassifern Ventilation Drift	9	West Wallsend	South West Panel	5
Charbon	8 Trunk2 Heading	5	West Wallsend	Underground	8
Charbon	817 Panel	10	Westcliff	502 Panel	5
Charbon	819 Panel	19	Westcliff	503 Panel	5
Charbon	821 Panel	10	Westcliff	504 Panel	24
Charbon	9 Trunk	5	Westcliff	518 Area	2
Charbon	901 Panel	5	Westcliff	518 L Panel	5
Charbon	B15 Panel	5	Westcliff	518 R Panel	5
Charbon	Outbye	5	Westcliff	518 Section	2
Charbon	Washery	5	Westcliff	519 Panel	12
Charbon O/C	O/C Shot Firer	4	Westcliff	519 PanelLeft	5
Charbon O/C	O/C	15	Westcliff	519 Panel L	5
Charbon O/C	Removal Of Overburden	5	Westcliff	519 Panel Left	5
Clarence	331 Panel	5	Westcliff	519 Panel Right	20
Clarence	332 Panel	5	Westcliff	520 Panel Left	5
Clarence	602 Panel	5	Westcliff	520 Panel Right	5
Clarence	609 'B' Heading	5	Westcliff	Inbye Dummy Tailgate	5
Clarence	611 A Panel	5	Westcliff	L/W 31	5
Clarence	611 C	5	Westcliff	Longwall 30	20
Clarence	611c	5	Westcliff	Longwall 31	70
Clarence	612 Panel	10	Westcliff	Longwall No. 31	5
Clarence	614 Panel	20	Westcliff	Washery	3
Clarence	Chpp	7	Westside	O/C	15
Clarence	Clarence Chpp	3	Whitehaven CPP	.	4
Clarence	Panel 614	5	Whitehaven O/C	.	10
Cullen Valley O/C	Crusher	1	Wilpinjong O/CThiess	Crusher Pad	7
Cullen Valley O/C	Cullen Valley O/C	5	Wilpinjong O/CThiess	O/Cut	5
Cullen Valley O/C	Interburden Shot Block 1	3	Wilpinjong O/CThiess	Shot Firer	4
Cullen Valley O/C	O/Cut	9	Wilpinjong O/CThiess	Shotfirers	5
Cullen Valley O/C	O/C	9	Wollemi	Backbye 20 Ct Mains	5
Cumnock Sth O/C	Chpp	5			
Cumnock Sth O/C	Lemington Bench	14			
Cumnock Sth O/C	Lemington Bench	8			

Cumnock Sth O/C	Lemington Bench Shot # 230 U40	3			
Cumnock Sth O/C	Lower Pikes Gully Bench	5			
Dartbrook	Backbye	5	Dartbrook	Ka103 Longwall	10
Dartbrook	Coal Handling Prep Plant	5	Dartbrook	Ka104	5
Dartbrook	Ka 103	10	Dartbrook	Longwall Ka 102	10
Dartbrook	Ka 103 L/W	5	Dartbrook	Longwall Ka101	5
Dartbrook	Ka 103 Longwall	9	Dartbrook	Longwall Ka102	10
Dartbrook	Ka 104	5	Dartbrook	Longwall Ka103	18
Dartbrook	Ka102 Longwall	30	Dartbrook	South Mains	5
Dartbrook	Ka103	9	Dartbrook	.	5

Table 12: Mine and Work Material.

Appin	Coal	242	Dendrobium	Coal	185
Appin	Coal & Stone Floor	10	Dendrobium	Coal & Stone	5
Appin	Coal & Stone Roof	7	Dendrobium	.	5
Appin	.	5	Donaldson O/C	Coal	12
Ashton CPP	Rom	10	Donaldson O/C	Coal & Stone	5
Ashton O/C	Coal & Stone	5	Donaldson O/C	Stone	7
Ashton O/C	Overburden	5	Donaldson O/C	.	4
Ashton O/C	Stone	5	Drayton O/C	Coal & Stone Bands	5
Ashton U/G	Coal & Stone Bands/Stone Floor	10	Drayton O/C	Rom	4
Ashton U/G	Coal & Stone Bands/Stone Floor+Roof	15	Drayton O/C	Stone	5
Ashton U/G	Coal & Stone Bands/Stone Roof	24	Duralie O/C	Coal	4
Ashton U/G	Stone	5	Duralie O/C	Coal & Stone	15
Austar Coal	Coal	59	Duralie O/C	Coal & Stone Bands	5
Austar Coal	Coal & Stone Bands	10	Duralie O/C	Stone	8
Austar Coal	Coal & Stone Floor	10	Elouera	Coal	10
Austar Coal	Coal & Stone Roof	5	Fassifern Auger Newst	Coal & Rom	2
Austar Coal	Rom	5	Fassifern Auger Newst	Coal & Stone Bands	5
Awaba Cen News	Coal	4	Glennies Creek	Coal & Stone Bands/Stone Floor+Roof	134
Awaba Cen News	Coal & Stone Bands/Stone Floor	5	Glennies Creek	Coal & Stone Bands/Stone Roof	15
Awaba Cen News	Coal & Stone Bands/Stone Floor+Roof	14	Glennies Creek	Coal/Coal & Stone Bands/Stone Floor+Roof	5
Awaba Cen News	Coal & Stone Roof	112	Glennies Creek	Coal/Stone Floor & Roof	3
Awaba Cen News	Coal/Coal & Stone Bands/Stone Roof	5	Glennies Creek	Stone	5

Awaba Cen News	Coal/Stone Floor & Roof	5	Hunter Valley CPP	Coal & Rom	5
Baal Bone	Cement Mix	5	Hunter Valley#10/C	Coal & Stone	19
Baal Bone	Coal	13	Hunter Valley#10/C	Coal/Stone/Rom	10
Baal Bone	Coal & Stone	7	Invincible O/C	Coal	5
Baal Bone	Coal & Stone Bands	5	Invincible O/C	Overburden	4
Baal Bone	Coal & Stone Bands/Stone Floor	10	Ivanhoe No 2	Coal & Stone Roof	5
Baal Bone	Coal & Stone Bands/Stone Floor+Roof	54	Ivanhoe No. 3	Coal & Stone Roof	12
Baal Bone	Coal & Stone Bands/Stone Roof	25	Lamberts Gully O/C	Overburden	10
Baal Bone	Coal & Stone Floor	4	Liddell CPP	Coal & Rom	2
Baal Bone	Coal & Stone Roof	44	Liddell O/C	Coal & Stone	10
Baal Bone	Coal/Coal & Stone Bands/Stone	15	Liddell O/C	Stone Floor	6
Baal Bone O/C	Coal	5	Macquarie	Rom	4
Baal Bone O/C	Overburden	4	Metropolitan	Coal	138
Beltana	Coal & Stone Bands	43	Metropolitan	.	5
Beltana	Coal & Stone Bands/Stone Floor	24	Mt Arthur Coal	Coal/Stone/Rom	5
Beltana	Coal & Stone Bands/Stone Floor+Roof	133	Mt Arthur Coal	Overburden	4
Beltana	Coal & Stone Bands/Stone Roof	26	Mt Arthur Coal	Rom	4
Beltana	Coal/Coal & Stone Bands	15	Mt Owen	Coal/Stone/Rom	12
Bengalla	Coal & Stone	61	Mt Owen	Overburden	10
Bengalla	Coal/Coal & Stone Bands/Stone	22	Mt Owen	Rom	5
Bengalla	Coal/Stone/Rom	7	Mt Owen	Reject	5
Berrima	Coal & Stone Bands	5	Mt Thorley Warkworth	Overburden	5
Bloomfield CPP	Coal & Rom	4	Mt Thorley Warkworth	Rom	6
Bloomfield CPP	Rom	4	Muswellbrook O/C	Coal	5
Bloomfield O/C	Coal & Stone	5	Muswellbrook O/C	Coal & Stone	10
Bloomfield O/C	Rom&Reject	5	Muswellbrook O/C	Coal/Coal & Stone Bands/Stone	8
Bloomfield O/C	Stone	5	N.R.E. No. 1	Coal	45
Bloomfield O/C	.	1	Narama	Coal & Stone	5
Boggabri O/CDowner Edi	Coal & Stone	5	Narama	Overburden	5
Bulga	Coal	10	Narama	Stone	3
Bulga	Overburden	6	Narama	.	5
Bulga	Rom	10	Newpac No. 1	Coal	6
Bulga	Stone	9	Newpac No. 1	Coal & Stone Bands/Stone Floor	5
Bulga	.	5	Newpac No. 1	Coal & Stone Bands/Stone Floor+Roof	141

Camberwell	Coal	3	Newpac No. 1	Coal & Stone Bands/Stone Roof	4
Camberwell	Rom	3	Newpac No. 1	Coal & Stone Roof	5
Camberwell	Stone	14	Newpac No. 1	Stone	10
Cen Angus Place	Coal	42	Newpac No. 1	Stone Floor/Roof	5
Cen Angus Place	Coal & Stone Bands/Stone Floor+Roof	30	Pine Dale O/C	Coal	5
Cen Angus Place	Coal & Stone Bands/Stone Roof	10	Ravensworth East	Coal/Stone/Rom	5
Cen Angus Place	Coal & Stone Roof	19	Rixs Creek	Coal & Stone Bands	5
Cen Angus Place	Coal/Coal & Stone Bands	4	Rixs Creek	Coal/Stone/Rom	5
Cen Angus Place	Coal/Coal & Stone Bands/Stone	5	Rixs Creek	Rom	4
Cen Mand - Coor	Cement Mix	17	Rixs Creek	Stone	5
Cen Mand - Coor	Coal	90	Springvale	Coal	45
Cen Mand - Coor	Coal & Stone Bands/Stone Floor+Roof	10	Springvale	Coal & Stone Bands/Stone Floor+Roof	18
Cen Mand - Coor	Coal & Stone Bands/Stone Roof	15	Springvale	Coal & Stone Bands/Stone Roof	5
Cen Mand - Coor	Coal & Stone Floor	5	Springvale	Coal & Stone Floor	10
Cen Mand - Coor	Coal & Stone Roof	170	Springvale	Coal & Stone Roof	25
Cen Mand - Coor	Coal/Stone Floor & Roof	15	Springvale	Coal/Stone Floor & Roof	5
Cen Mand - Coor	Stone	14	Springvale	Stone Floor	1
Cen Mand - Coor	.	15	Stratford	Coal	5
Cen Manne Wyee	Coal & Stone Bands	107	Stratford	Coal & Rom	4
Cen Manne Wyee	Coal & Stone Bands/Stone Floor	5	Stratford	Coal & Stone	5
Cen Manne Wyee	Coal & Stone Dyke	5	Stratford	Overburden	5
Cen Manne Wyee	Roadbase	5	Stratford	.	4
Cen Munmorah	Coal & Stone Roof	5	Tahmoor	Coal	99
Cen Myuna	Cement Mix	12	Tahmoor	Coal & Stone Floor	85
Cen Myuna	Coal	5	Tahmoor	Coal/Stone Floor & Roof	5
Cen Myuna	Coal & Stone Bands	80	Tahmoor	Rom	2
Cen Myuna	Coal & Stone Bands/Stone	5	Tarrawonga O/C	Coal & Stone	10
Cen Myuna	Coal & Stone Bands/Stone Roof	4	Tarrawonga O/C	Stone	4
Cen Myuna	Coal & Stone Roof	19	Tasman	Coal & Stone Bands	14
Cen Myuna	Stone	15	Ulan - Surface Operations	Coal	14
Cen Myuna	.	7	Ulan - Surface Operations	Overburden	8
Cen Newstan	Cement Mix	6	Ulan CPP	Coal	3
Cen Newstan	Coal & Stone	5	Ulan U/G	Cement Mix	1
Cen Newstan	Coal & Stone Bands	41	Ulan U/G	Coal	32
Cen Newstan	Coal & Stone Bands/Stone Floor	83	Ulan U/G	Coal & Stone Bands	5

Cen Newstan	Coal & Stone Bands/Stone Floor+Roof	103	Ulan U/G	Coal & Stone Bands/Stone Roof	10
Cen Newstan	Coal & Stone Bands/Stone Roof	20	Ulan U/G	Coal & Stone Floor	9
Cen Newstan	Rom	2	Ulan U/G	Coal & Stone Roof	19
Cen Newstan	Rom&Reject	9	Ulan U/G	.	5
Cen Newstan	Stone	3	United	Coal & Stone Bands	20
Cen Newstan	.	5	United	Coal & Stone Bands/Stone Floor	55
Chain Valley	Coal	9	United	Coal & Stone Bands/Stone Roof	5
Chain Valley	Coal & Stone	5	United	Coal & Stone Floor	5
Chain Valley	Coal & Stone Bands	10	United	Coal/Coal & Stone Bands	20
Chain Valley	Coal & Stone Roof	105	United	Coal/Coal & Stone Bands/Stone Floor	10
Chain Valley	Rom&Reject	2	United	.	10
Chain Valley	Stone	33	United CPP	Rom	9
Chain Valley	Stone Floor	4	Wambo O/C	Coal & Rom	4
Chain Valley	Stone Roof	2	Wambo O/C	Coal & Stone	5
Charbon	Coal	20	Wambo O/C	Coal/Coal & Stone Bands/Stone	6
Charbon	Coal & Stone Bands	10	Wambo O/C	Overburden	10
Charbon	Coal & Stone Bands/Stone Floor+Roof	9	Wambo O/C	Reject	5
Charbon	Coal & Stone Bands/Stone Roof	10	Wambo O/C	Stone	7
Charbon	Coal/Coal & Stone Bands/Stone Floor+Roof	10	Wambo CPP	Rom	4
Charbon	Coal/Stone Floor & Roof	5	Wambo U/G	Coal & Stone Bands/Stone Floor+Roof	44
Charbon	Roadbase	5	Wambo U/G	Coal & Stone Bands/Stone Roof	20
Charbon O/C	Overburden	24	Wambo U/G	Coal/Coal & Stone Bands/Stone Roof	4
Clarence	Coal	65	Werris Creek Coal	Coal & Rom	5
Clarence	Coal & Stone Roof	15	Werris Creek O/C	Coal & Stone	7
Cullen Valley O/C	Coal	19	West Wallsend	Cement Mix	24
Cullen Valley O/C	Overburden	3	West Wallsend	Coal	5
Cullen Valley O/C	.	5	West Wallsend	Coal & Stone Bands	226
Cumnock Sth O/C	Coal & Rom	5	West Wallsend	Coal & Stone Bands/Stone Roof	5
Cumnock Sth O/C	Coal/Stone/Rom	5	West Wallsend	Coal & Stone Floor	4
Cumnock Sth O/C	Overburden	12	West Wallsend	Coal & Stone Roof	5
Cumnock Sth O/C	Stone	8	West Wallsend	Stone	23
Cumnock Sth O/C	.	5	West Wallsend	Stone Floor/Roof	5
Dartbrook	Coal & Stone Bands	10	West Wallsend	.	8
Dartbrook	Coal & Stone Bands/Stone Floor	10	Westcliff	Coal	172

Dartbrook	Coal & Stone Bands/Stone Roof	40	Westcliff	Coal & Stone Floor	20
Dartbrook	Coal & Stone Roof	19	Westcliff	Coal & Stone Roof	10
Dartbrook	Coal/Coal & Stone Bands	47	Westcliff	Coal/Stone Floor & Roof	5
Dartbrook	Coal/Coal & Stone Bands/Stone Roof	5	Westcliff	.	6
Dartbrook	Reject	5	Westside	Coal	5
Dartbrook	.	10	Westside	Coal & Stone	10
Delta	Coal	30	Whitehaven CPP	.	4
Delta Decline	Stone	14	Whitehaven O/C	Coal & Stone	10
			Wilpinjong O/CThiess	Coal	4
			Wilpinjong O/CThiess	Coal & Stone	3
			Wilpinjong O/CThiess	Overburden	14
			Wollemi	Coal & Stone Bands/Stone Floor+Roof	5

Table 13: Nature.

Brushing Floor	Hauling Overburden
Coal Haulage	Loading & Hauling Coal-Drilling
Coal Preparation	Loading & Hauling Overburden
Coal Winning, Loading & Transport	Loading & Stemming Shot Holes
Continuous Mining	Loading Coal
Continuous Mining+Roof Bolting	Loading Stone
Crushing & Sizing Coal	Longwall Development
Crushing And Washing Coal	Longwall Retreat
Crushing Coal	Longwall Retreat (Bi-Di)
Development	Longwall Retreat (Uni-Di And Bi-Di)
Development/Place Change	Longwall Retreat (Uni-Di)
Dozing & Loading Coal	Maintenance - Surface
Dozing & Moving Overburden/Loading & Hauling Coal	Maintenance - Underground
Dozing Coal	Materials Supply
Drilling	Mining Through Stone Fault & Dyke
Drilling & Shotfiring	Partial Pillar Extraction
Drilling Blast Holes	Pillar Extraction
Drilling Overburden	Place Changing
Drilling Overburden-Dozing Coal & Overburden-	Quartering Pillars
Drilling Overburden-Loading & Dozing Coal & Stone	Removal Of Overburden

Drilling Partings & Overburden	Ripping And Scraping Overburden
Erecting Seal / Spraying Stoppings	Roof Bolting
General Open Cut Work	Roof Bolting & Panel Preparation
General Underground	Secondary Support
Grading Roads	Stone Drift
Ground Consolidation	Stone Drive
Grouting	Stone Dusting
Grubbing Floor	Washing Coal & Loading Train
Hauling & Drilling Overburden - Grading Roads	Wet Roof Bolting
	Widening Installation Road

Table 14: Mine and Nature.

Appin	Continuous Mining+Roof Bolting	168	Dendrobium	Continuous Mining+Roof Bolting	135
Appin	General Underground	15	Dendrobium	Longwall Retreat (Bi-Di)	50
Appin	Loading Coal	6	Dendrobium	Maintenance - Underground	5
Appin	Longwall Retreat (Bi-Di)	5	Dendrobium	.	5
Appin	Longwall Retreat (Uni-Di)	70	Donaldson O/C	Dozing & Loading Coal	12
Ashton CPP	Coal Preparation	5	Donaldson O/C	General O/CWork	16
Ashton CPP	Loading Coal	5	Drayton O/C	Coal Haulage	5
Ashton O/C	Drilling & Shotfiring	5	Drayton O/C	Coal Preparation	4
Ashton O/C	General O/CWork	5	Drayton O/C	Removal Of Overburden	5
Ashton O/C	Loading & Stemming Shot Holes	5	Duralie O/C	General O/CWork	29
Ashton U/G	Development	15	Duralie O/C	Loading & Stemming Shot Holes	3
Ashton U/G	Longwall Development	34	Elouera	Longwall Retreat (Uni-Di)	10
Ashton U/G	Stone Drift	5	Fassifern Auger Newstan	Coal Winning, Loading & Transport	5
Austar Coal	Coal Preparation	9	Fassifern Auger Newstan	Crushing & Sizing Coal	2
Austar Coal	Continuous Mining+Roof Bolting	5	Glennies Creek	Continuous Mining+Roof Bolting	10
Austar Coal	Development	25	Glennies Creek	Development	30
Austar Coal	Longwall Development	35	Glennies Creek	General Underground	3
Austar Coal	Longwall Retreat (Bi-Di)	10	Glennies Creek	Longwall Development	34
Austar Coal	Roof Bolting	5	Glennies Creek	Longwall Retreat	8
Awaba Cen Newstan	Grubbing Floor	5	Glennies Creek	Longwall Retreat (Uni-Di)	77
Awaba Cen Newstan	Partial Pillar Extraction	28	Hunter Valley CPP	Coal Preparation	5
Awaba Cen Newstan	Place Changing	88	Hunter Valley#10/C	Drilling Partings & Overburden	4

Awaba Cen Newstan	Quartering Pillars	24	Hunter Valley#10/C	General O/CWork	20
Baal Bone	Coal Preparation	5	Hunter Valley#10/C	Loading & Stemming Shot Holes	5
Baal Bone	Development	48	Invincible O/C	Dozing & Moving Overburden/Loading & Hauling Coal	5
Baal Bone	Longwall Retreat (Bi-Di)	38	Invincible O/C	Loading & Stemming Shot Holes	4
Baal Bone	Longwall Retreat (Uni-Di)	79	Ivanhoe No 2	Continuous Mining+Roof Bolting	5
Baal Bone	Mining Through Stone Fault & Dyke	5	Ivanhoe No. 3	Continuous Mining+Roof Bolting	12
Baal Bone	Washing Coal & Loading Train	7	Lamberts Gully O/C	Hauling Overburden	10
Baal Bone O/C	Drilling & Shottfiring	2	Liddell CPP	Coal Preparation	2
Baal Bone O/C	Loading & Hauling Coal-Drilling	5	Liddell O/C	Drilling Overburden	6
Baal Bone O/C	Loading & Stemming Shot Holes	2	Liddell O/C	General O/CWork	10
Beltana	Development	5	Macquarie	Coal Preparation	4
Beltana	Longwall Development	79	Metropolitan	Coal Preparation	4
Beltana	Longwall Retreat (Bi-Di)	152	Metropolitan	Development/Place Change	34
Beltana	Widening Installation Road	5	Metropolitan	Longwall Retreat (Uni-Di)	85
Bengalla	Drilling	2	Metropolitan	Maintenance - Underground	5
Bengalla	General O/CWork	88	Metropolitan	Place Changing	15
Berrima	Continuous Mining+Roof Bolting	5	Mt Arthur Coal	Coal Preparation	4
Bloomfield CPP	Coal Preparation	8	Mt Arthur Coal	General O/CWork	9
Bloomfield O/C	General O/CWork	15	Mt Owen	General O/CWork	17
Bloomfield O/C	.	1	Mt Owen	Loading & Stemming Shot Holes	10
Boggabri O/C(Downer Edi)	General O/CWork	5	Mt Owen	Washing Coal & Loading Train	5
Bulga	Coal Preparation	9	Mt Thorley Warkworth	Coal Preparation	6
Bulga	Dozing Coal	5	Mt Thorley Warkworth	Ripping And Scraping Overburden	5
Bulga	Drilling Blast Holes	5	Muswellbrook O/C	General O/CWork	18
Bulga	General O/CWork	7	Muswellbrook O/C	Loading & Stemming Shot Holes	5
Bulga	Loading & Hauling Overburden	4	N.R.E. No. 1	Continuous Mining+Roof Bolting	20
Bulga	Loading Stone	5	N.R.E. No. 1	Development/Place Change	10
Bulga	Maintenance - Surface	5	N.R.E. No. 1	Pillar Extraction	10
Camberwell	Coal Preparation	6	N.R.E. No. 1	Place Changing	5
Camberwell	General O/CWork	9	Narama	Drilling Blast Holes	5
Camberwell	Loading & Stemming Shot Holes	5	Narama	General O/CWork	10
Cen Angus	Crushing & Sizing Coal	2	Narama	Loading & Stemming Shot Holes	3

Place P/L					
Cen Angus Place P/L	Development	49	Newpac No. 1	Continuous Mining+Roof Bolting	24
Cen Angus Place P/L	Longwall Retreat (Bi-Di)	41	Newpac No. 1	Crushing & Sizing Coal	6
Cen Angus Place P/L	Longwall Retreat (Uni-Di)	14	Newpac No. 1	Development	58
Cen Angus Place P/L	Secondary Support	3	Newpac No. 1	Longwall Development	34
Cen Angus Place P/L	.	1	Newpac No. 1	Pillar Extraction	39
Cen Mand- Coor	Development	188	Newpac No. 1	Stone Drive	15
Cen Mand- Coor	Erecting Seal / Spraying Stoppings	20	Pine Dale O/C	Dozing & Loading Coal	5
Cen Mand- Coor	General Underground	18	Ravensworth East	General O/CWork	5
Cen Mand- Coor	Longwall Retreat (Uni-Di)	97	Rixs Creek	Coal Preparation	4
Cen Mand- Coor	Stone Drift	9	Rixs Creek	General O/CWork	15
Cen Mand- Coor	Stone Drive	15	Springvale	Continuous Mining+Roof Bolting	5
Cen Mand- Coor	Stone Dusting	2	Springvale	Crushing Coal	3
Cen Mand- Coor	.	2	Springvale	Development	40
Cen Mann Wye	Brushing Floor	5	Springvale	Longwall Retreat (Bi-Di)	58
Cen Mann Wye	Development	93	Springvale	Roof Bolting	1
Cen Mann Wye	Place Changing	19	Springvale	Washing Coal & Loading Train	2
Cen Mann Wye	Roof Bolting & Panel Preparation	5	Stratford	Coal Preparation	4
Cen Munmorah	Development	5	Stratford	General O/CWork	15
Cen Myuna	Erecting Seal / Spraying Stoppings	12	Stratford	Maintenance - Surface	4
Cen Myuna	Place Changing	118	Tahmoor	Coal Preparation	6
Cen Myuna	Stone Drift	15	Tahmoor	Continuous Mining+Roof Bolting	130
Cen Myuna	.	2	Tahmoor	Longwall Retreat (Bi-Di)	55
Cen Newstan	Coal Preparation	11	Tarrawonga O/C	General O/CWork	10
Cen Newstan	Coal Winning, Loading & Transport	5	Tarrawonga O/C	Loading & Stemming Shot Holes	4
Cen Newstan	Development	59	Tasman	Development	14
Cen Newstan	Erecting Seal / Spraying Stoppings	6	Ulan - Surface Operations	Coal Haulage	4
Cen Newstan	General Underground	5	Ulan - Surface Operations	Drilling & Shotfiring	8
Cen Newstan	Grouting	3	Ulan - Surface Operations	General O/CWork	5
Cen Newstan	Longwall Development	49	Ulan - Surface Operations	Washing Coal & Loading Train	5
Cen Newstan	Longwall Retreat (Bi-Di)	49	Ulan CPP	Washing Coal & Loading Train	3
Cen Newstan	Longwall Retreat (Uni-Di And Bi-Di)	5	Ulan U/G	Continuous Mining+Roof Bolting	9

Cen Newstan	Longwall Retreat (Uni-Di)	77	Ulan U/G	Development	36
Cen Newstan	Roof Bolting	3	Ulan U/G	Longwall Retreat (Bi-Di)	35
Cen Newstan	Widening Installation Road	5	Ulan U/G	.	1
Chain Valley	Coal Preparation	2	United	Continuous Mining+Roof Bolting	10
Chain Valley	Development	10	United	Development	5
Chain Valley	Partial Pillar Extraction	15	United	Erecting Seal / Spraying Stoppings	5
Chain Valley	Place Changing	104	United	General Underground	5
Chain Valley	Stone Drift	37	United	Longwall Development	30
Chain Valley	Wet Roof Bolting	2	United	Longwall Retreat (Bi-Di)	55
Charbon	Continuous Mining	5	United	Longwall Retreat (Uni-Di)	15
Charbon	Continuous Mining+Roof Bolting	54	United CPP	Coal Preparation	9
Charbon	Crushing And Washing Coal	2	Wambo (O/C)	Coal Preparation	4
Charbon	General Underground	5	Wambo (O/C)	Drilling Partings & Overburden	3
Charbon	Washing Coal & Loading Train	3	Wambo (O/C)	General O/CWork	20
Charbon O/C	Drilling Overburden-Loading & Dozing Coal & Stone	5	Wambo (O/C)	Loading & Stemming Shot Holes	10
Charbon O/C	Hauling & Drilling Overburden - Grading Roads	5	Wambo CPP	Coal Preparation	4
Charbon O/C	Loading & Stemming Shot Holes	4	Wambo U/G	Development	25
Charbon O/C	Removal Of Overburden	10	Wambo U/G	Longwall Development	34
Clarence	Coal Preparation	3	Wambo U/G	Stone Drive	9
Clarence	Continuous Mining	25	Werris Creek Coal	Crushing & Sizing Coal	5
Clarence	Continuous Mining+Roof Bolting	25	Werris Creek O/C	General O/CWork	7
Clarence	General Underground	5	West Wallsend	Development	138
Clarence	Pillar Extraction	15	West Wallsend	Erecting Seal / Spraying Stoppings	2
Clarence	Washing Coal & Loading Train	7	West Wallsend	General Underground	3
Cullen Valley O/C	Coal Haulage	5	West Wallsend	Ground Consolidation	8
Cullen Valley O/C	Crushing & Sizing Coal	1	West Wallsend	Longwall Retreat	28
Cullen Valley O/C	Drilling Overburden	4	West Wallsend	Longwall Retreat (Bi-Di)	4
Cullen Valley O/C	General O/CWork	5	West Wallsend	Longwall Retreat (Uni-Di)	70
Cullen Valley O/C	Loading & Hauling Coal-Drilling	4	West Wallsend	Materials Supply	5
Cullen Valley O/C	Loading & Hauling Overburden	5	West Wallsend	Stone Drive	33
Cullen Valley O/C	Loading & Stemming Shot Holes	3	West Wallsend	.	14

Cumnock Sth O/C	Coal Preparation	5	Westcliff	Coal Preparation	3
Cumnock Sth O/C	Drilling Overburden-Dozing Coal & Overburden-	7	Westcliff	Continuous Mining+Roof Bolting	99
Cumnock Sth O/C	General O/CWork	5	Westcliff	Grouting	6
Cumnock Sth O/C	Grading Roads	5	Westcliff	Longwall Retreat (Bi-Di)	10
Cumnock Sth O/C	Loading & Stemming Shot Holes	13	Westcliff	Longwall Retreat (Uni-Di)	90
Dartbrook	Coal Preparation	5	Westcliff	Maintenance - Underground	5
Dartbrook	Development	5	Westside	General O/CWork	15
Dartbrook	General Underground	10	Whitehaven CPP	Coal Preparation	4
Dartbrook	Longwall Development	24	Whitehaven O/C	General O/CWork	10
Dartbrook	Longwall Retreat	20	Wilpinjong O/C(Thiess)	Crushing & Sizing Coal	3
Dartbrook	Longwall Retreat (Bi-Di)	5	Wilpinjong O/C(Thiess)	Crushing Coal	4
Dartbrook	Longwall Retreat (Uni-Di)	77	Wilpinjong O/C(Thiess)	Loading & Hauling Overburden	5
Delta	Continuous Mining+Roof Bolting	15	Wilpinjong O/C(Thiess)	Loading & Stemming Shot Holes	9
Delta	Longwall Retreat (Uni-Di)	15	Wollemi	General Underground	5
Delta Decline	Stone Drift	14			

Table 15: Mine and Ventilation.

Mine	Ventilation	#	Mine	Ventilation	#
Appin	Anti-Tropal	65	Clarence	Brattice	5
Appin	Auxiliary Left	177	Clarence	Brattice Left	30
Appin	Auxiliary Right	10	Clarence	Brattice Right	20
Appin	Homo-Tropal	5	Clarence	Goaf Return	10
Appin	Through	2	Clarence	Through	5
Ashton U/G	Auxiliary Left	45	Dartbrook	Anti-Tropal	102
Ashton U/G	Auxiliary Right	9	Dartbrook	Auxiliary Left	24
Austar Coal	Anti-Tropal	10	Dartbrook	Auxiliary Right	5
Austar Coal	Auxiliary Left	40	Delta	Anti-Tropal	15
Austar Coal	Auxiliary Right	25	Delta	Auxiliary Left	10
Austar Coal	Through	5	Delta	Through	5
Awaba Cen Newstan	Brattice Left	25	Delta Decline	Auxiliary Right	14
Awaba Cen Newstan	Brattice Left/Through	5	Dendrobium	Anti-Tropal	50

Awaba Cen Newstan	Brattice Right	24	Dendrobium	Auxiliary Left	105
Awaba Cen Newstan	Brattice Right/Narrow Side Intake	9	Dendrobium	Auxiliary Right	30
Awaba Cen Newstan	Section Return	73	Elouera	Anti-Tropical	10
Awaba Cen Newstan	Through	4	Glennies Creek	Anti-Tropical	85
Baal Bone	Anti-Tropical	112	Glennies Creek	Auxiliary Left	64
Baal Bone	Auxiliary Left	35	Glennies Creek	Auxiliary Right	10
Baal Bone	Auxiliary Right	4	Glennies Creek	Through	3
Beltana	Anti-Tropical	152	Metropolitan	Anti-Tropical	85
Beltana	Auxiliary Left	59	Metropolitan	Auxiliary Left	44
Beltana	Auxiliary Right	30	Metropolitan	Auxiliary Right	5
Berrima	Brattice Left	5	N.R.E. No. 1	Auxiliary Left	25
Cen Angus Place	Anti-Tropical	55	N.R.E. No. 1	Brattice Left	15
Cen Angus Place	Auxiliary Left	24	Newpac No. 1	Auxiliary Left	24
Cen Man - Coor	Anti-Tropical	97	Newpac No. 1	Auxiliary Left & Right	4
Cen Man - Coor	Auxiliary	9	Newpac No. 1	Auxiliary Right	84
Cen Man - Coor	Auxiliary Left	198	Newpac No. 1	Brattice	5
Cen Man - Coor	Auxiliary Right	5	Newpac No. 1	Brattice Left	5
Cen Man - Coor	Section Return	32	Newpac No. 1	Brattice Right	9
Cen Mann Wye	Brattice	5	Newpac No. 1	Goaf Return/Through	15
Cen Mann Wye	Brattice Left	38	Newpac No. 1	Through	24
Cen Mann Wye	Brattice Left & Right	5	Springvale	Anti-Tropical	58
Cen Mann Wye	Brattice Left/Narrow Side Return	9	Springvale	Auxiliary Left	36
Cen Mann Wye	Brattice Right	43	Tahmoor	Auxiliary Left	125
Cen Mann Wye	Brattice Right/Narrow Side Intake	5	Tahmoor	Auxiliary Right	5
Cen Mann Wye	Brattice Right/Narrow Side Return	8	Tahmoor	Homo-Tropical	55
Cen Mann Wye	Section Return	9	Tasman	Auxiliary Left	14
Cen Munmorah	Brattice Right	5	Ulan U/G	Anti-Tropical	35
Cen Myuna	Auxiliary Right	15	Ulan U/G	Auxiliary	10
Cen Myuna	Brattice Left	35	Ulan U/G	Auxiliary Left	11
Cen Myuna	Brattice Left/Narrow Side Intake	5	Ulan U/G	Auxiliary Right	14
Cen Myuna	Brattice Right	68	Ulan U/G	Section Return	6
Cen Myuna	Brattice Right/Narrow Side Intake	5	United	Anti-Tropical	70
Cen Myuna	Narrow Sided Brattice	5	United	Auxiliary	5
Cen Myuna	Section Return	14	United	Auxiliary Left	30
Cen Newstan	Anti-Tropical	131	United	Auxiliary Right	10
Cen Newstan	Auxiliary Left	24	Wambo U/G	Auxiliary Left	39
Cen Newstan	Auxiliary Right	84	Wambo U/G	Auxiliary Right	29
Cen Newstan	Section Return	14	West Wallsend	Anti-Tropical	105

Chain Valley	Auxiliary	2	West Wallsend	Auxiliary Left	41
Chain Valley	Auxiliary Left	5	West Wallsend	Auxiliary Right	130
Chain Valley	Auxiliary Right	42	West Wallsend	Section Return	26
Chain Valley	Brattice Right	80	Westcliff	Anti-Tropal	95
Chain Valley	Brattice Right/Narrow Side Intake	24	Westcliff	Auxiliary Left	106
Chain Valley	Section Return	15	Westcliff	Through	4
Charbon	Anti-Tropal	5	Wollemi	Through	5
Charbon	Brattice Left	30			
Charbon	Brattice Right	29			

Table 16: Ventilation when Brattice Condition is not missing.

Ventilation	Brattice Condition	count
Auxiliary	Average	9
Auxiliary	Good	5
Auxiliary Left	Average	852
Auxiliary Left	Good	355
Auxiliary Left	Poor	30
Auxiliary Left & Right	Good	4
Auxiliary Right	Average	348
Auxiliary Right	Good	173
Auxiliary Right	Poor	29
Brattice	Average	5
Brattice	Good	10
Brattice Left	Average	93
Brattice Left	Good	75
Brattice Left & Right	Average	5
Brattice Left/Narrow Side Intake	Average	5
Brattice Left/Narrow Side Return	Average	9
Brattice Left/Through	Average	5
Brattice Right	Average	145
Brattice Right	Good	85
Brattice Right	Poor	37
Brattice Right/Narrow Side Intake	Average	33
Brattice Right/Narrow Side Intake	Good	5
Brattice Right/Narrow Side Intake	Poor	5
Brattice Right/Narrow Side Return	Average	8
Goaf Return/Through	Average	5
Goaf Return/Through	Good	10

Narrow Sided Brattice	Average	5
Section Return	Average	29
Section Return	Good	3
Through	Average	20
.	Good	66

Table 17: Mine and Machine.

Mine	Machine	#	Mine	Machine	#
Appin	Dbt EI 600	60	Duralie O/C	Caterpillar	9
Appin	Joy 7ls	15	Duralie O/C	Caterpillar/Dozer	5
Appin	Joy 12cm 20	10	Duralie O/C	Drilltech - Caterpillar	10
Appin	Joy 12cm 30	55	Duralie O/C	Reeddrill-Caterpillar	5
Appin	Joy 12cm 32	5	Elouera	Eickhoff D.E.R.D.S.	10
Appin	Voest Alpine A.B.M. 20	113	Fassifern Auger (Newstan)	Cat Dump Trucks	5
Ashton CPP	Caterpillar	5	Fassifern Auger (Newstan)	Crusher-Screens-Sizer	2
Ashton CPP	Caterpillar Loader	5	Glennies Creek	Dbt 30mb	5
Ashton O/C	Drill:Drilltech D40ks -	5	Glennies Creek	Dbt 30mb3	15
Ashton O/C	Drilltech	10	Glennies Creek	Dbt EI 600	47
Ashton U/G	Joy 12cm 11	34	Glennies Creek	Eickhoff D.E.R.D.S.	38
Ashton U/G	Joy 12cm 12	10	Glennies Creek	Eimco	3
Ashton U/G	Mitsui Miike S200	10	Glennies Creek	Joy 12cm 30	15
Austar Coal	Komatsu	9	Glennies Creek	Mitsui Miike	5
Austar Coal	Voest Alpine A.B.M. 20	45	Glennies Creek	Mitsui Miike S200	5
Austar Coal	Voest Alpine A.B.M. 25	20	Glennies Creek	Voest Alpine A.B.M. 25	15
Awaba Cen Newstan	Joy 12cm 12	145	Hunter Valley#10/C	Dragline	10
Baal Bone	Joy 12cm 20	38	Invincible O/C	Caterpillar	5
Baal Bone	Joy 12cm 30	15	Lamberts Gully O/C	Caterpillar	10
Baal Bone	Joy 4ls D.E.R.D.S.	117	Liddell CPP	Caterpillar	2
Baal Bone	Washery	12	Liddell O/C	Drill	6
Baal Bone O/C	Caterpillar	5	Macquarie	Crusher-Screens-Sizer	4
Beltana	Dbt EI 3000	152	Metropolitan	Caterpillar Loader	4
Beltana	Joy 12cm 12	5	Metropolitan	Eickhoff D.E.R.D.S.	80
Beltana	Joy 12cm 12 D	44	Metropolitan	Eimco Dash 3	49
Beltana	Joy 12cm 30	40	Mt Arthur Coal	Cat. Bulldozer Diesel	4
Bengalla	Caterpillar	10	Mt Arthur Coal	Caterpillar	5
Bengalla	Hitachi Ex3500 Excavator	10	Mt Owen	Caterpillar	10

Bengalla	Le Tourneau L 1800	10	Mt Owen	Caterpillar/Dozer	5
Berrima	Joy 12cm 12	5	Mt Thorley Warkworth	Komatsu	5
Bloomfield CPP	Screens-Crushers	4	Muswellbrook O/C	Caterpillar	5
Bloomfield O/C	Caterpillar	10	Muswellbrook O/C	Ingersoll Rand	5
Bloomfield O/C	Trucks & Shovels	5	Muswellbrook O/C	Komatsu	5
Boggabri O/C Downer Edi	Caterpillar	5	N.R.E. No. 1	Eimco Dash 3	15
Bulga	Dresser Dump Truck	11	N.R.E. No. 1	Joy 12 Cm	5
Bulga	Ingersoll Rand	5	N.R.E. No. 1	Joy 12cm 14	5
Bulga	Komatsu	14	N.R.E. No. 1	Joy 12cm 15	5
Camberwell	Caterpillar	5	N.R.E. No. 1	Joy 12cm 30	15
Camberwell	Caterpillar Loader	5	Newpac No. 1	Caterpillar	6
Cen Angus Place	Crusher-Screens-Sizer	2	Newpac No. 1	Dbt 30mb	5
Cen Angus Place	Joy 12cm 12	5	Newpac No. 1	Joy	5
Cen Angus Place	Joy 12cm 20	5	Newpac No. 1	Joy 12 Cm	5
Cen Angus Place	Joy 12cm 30	39	Newpac No. 1	Joy 12cm 11	135
Cen Angus Place	Joy 4ls D.E.R.D.S.	55	Newpac No. 1	Mitsui Miike	5
Cen Angus Place	Roof Bolter	3	Newpac No. 1	Mitsui Miike S200	15
Cen Manda- Coor	Eimco	24	Pine Dale O/C	Cat Dump Trucks	5
Cen Manda- Coor	Eimco Dash 3	15	Ravensworth East	Caterpillar	5
Cen Manda- Coor	Joy 7ls	97	Rixs Creek	Cat Dump Trucks	5
Cen Manda- Coor	Meyco Piccola Pump	4	Rixs Creek	Marion Dragline	5
Cen Manda- Coor	Mitsui Miike S200	15	Springvale	Crusher-Transfer Points	3
Cen Manda- Coor	Roof Bolter	9	Springvale	Joy 12cm 12	10
Cen Manda- Coor	Voest Alpine A.B.M. 25	173	Springvale	Joy 12cm 30	35
Cen Manneri(Wyee)	Dbt 1038	19	Springvale	Joy 4ls D.E.R.D.S.	58
Cen Manner (Wyee)	Joy 12cm 12	103	Springvale	Roof Bolter	1
Cen Munmorah	Dbt 1038	5	Springvale	Washery	2
Cen Myuna	Joy 12cm 12	93	Stratford	Caterpillar	5
Cen Myuna	Joy 12cm 14	5	Stratford	Caterpillar Loaders Dozers	5
Cen Myuna	Joy 14cm 15	20	Stratford	Dozer & Loader	4
Cen Myuna	Mevco Piccone Pump	5	Stratford	Drilltech - Caterpillar	5
Cen Myuna	Meyco Piccola Pump	6	Tahmoor	Joy 7ls	55
Cen Myuna	Mitsui Miike S200	15	Tahmoor	Joy 12cm 20	10
Cen Newstan	Breaker-Crusher-Screens	2	Tahmoor	Joy 12cm 30	120
Cen Newstan	Eimco	8	Tahmoor	Washery	2
Cen Newstan	Joy 7ls	131	Tarrawonga O/C	Caterpillar	5
Cen Newstan	Loader-Bradford Breaker- Crushe	5	Tarrawonga O/C	Hitachi-Caterpillar-Reedrill	5

Cen Newstan	Meyco Piccola Pump	6	Tasman	Joy 12cm 15	9
Cen Newstan	Screens-Transfer Points	9	Tasman	Joy 12cm 5	5
Cen Newstan	Voest Alpine A.B.M. 20	25	Ulan - Surface Operations	Caterpillar	5
Cen Newstan	Voest Alpine A.B.M. 25	88	Ulan - Surface Operations	Unit Rig M36 Rear Dump Truck	4
Chain Valley	Crusher-Screens-Sizer	1	Ulan - Surface Operations	Washery	5
Chain Valley	Eimco Dash 3	129	Ulan CPP	Washery	3
Chain Valley	Mitsui Miike S200	37	Ulan U/G	Eickhoff D.E.R.D.S.	30
Chain Valley	Roof Bolter	2	Ulan U/G	Jeffrey 2048 (Remote Control)	4
Charbon	Eimco	5	Ulan U/G	Joy 12cm 12	16
Charbon	Joy 12cm 11	10	Ulan U/G	Joy 12cm 20	5
Charbon	Joy 12cm 12	49	Ulan U/G	Joy 12cm 30	15
Charbon	Washery	5	Ulan U/G	Joy 4ls D.E.R.D.S.	5
Charbon O/C	Caterpillar	15	United	Joy 12cm 12	35
Charbon O/C	Caterpillar Loaders Dozers	5	United	Joy 12cm 29	10
Clarence	Eimco	5	United	Joy 4ls D.E.R.D.S.	70
Clarence	Joy 12 Cm	5	United CPP	Cat. Bulldozer Diesel	5
Clarence	Joy 12cm 12	35	United CPP	Caterpillar	4
Clarence	Joy 12cm 30	25	Wambo (O/C)	Caterpillar	9
Clarence	Washery	10	Wambo (O/C)	Drill	2
Cullen Valley O/C	Caterpillar	5	Wambo (O/C)	Reeddrill-Caterpillar	4
Cullen Valley O/C	Caterpillar Loader	9	Wambo CPP	Caterpillar	4
Cullen Valley O/C	Crusher-Screens-Sizer	1	Wambo U/G	Joy 12cm 11	10
Cullen Valley O/C	Drilltech - Caterpillar	9	Wambo U/G	Joy 12cm 29	5
Cumnock Sth O/C	Cat Dump Trucks	5	Wambo U/G	Joy 12cm 30	29
Cumnock Sth O/C	Cat. Bulldozer Diesel	5	Wambo U/G	Mitsui Miike S200	19
Cumnock Sth O/C	Caterpillar	5	Werris Creek Coal	Caterpillar	5
Cumnock Sth O/C	Hitachi-Caterpillar-Reeddrill	7	Werris Creek O/C	Reeddrill-Caterpillar	7
Cumnock Sth O/C	Trucks	5	West Wallsend	Alpine Miner	38
Dartbrook	Cat Dump Trucks	5	West Wallsend	Dbt EI 1000	102
Dartbrook	Dbt EI 1000	5	West Wallsend	Eimco	5
Dartbrook	Dbt EI 3000	97	West Wallsend	Joy	10
Dartbrook	Eimco	5	West Wallsend	Joy 12 Cm	5
Dartbrook	Voest Alpine A.B.M. 20	29	West Wallsend	Joy 12cm 12	5
Delta	Eickhoff D.E.R.D.S.	15	West Wallsend	Joy 12cm 30	10
Delta	Voest Alpine A.B.M. 20	15	West Wallsend	Joy 12cm Wide Head	5
Dendrobium	Joy	5	West Wallsend	Joy 14cm 15	4

Dendrobium	Joy 7ls	45	West Wallsend	Mevco Piccone Pump	2
Dendrobium	Joy 12cm 30	70	West Wallsend	Meyco Piccola Pump	22
Dendrobium	Voest Alpine A.B.M. 20	65	West Wallsend	Voest Alpine A.B.M. 20	63
Dendrobium	Voest Alpine A.B.M. 25	5	West Wallsend	Voest Alpine A.B.M. 25	31
Donaldson O/C	Caterpillar	4	Westcliff	Joy 12cm 12	5
Donaldson O/C	Caterpillar Loaders Dozers	4	Westcliff	Joy 12cm 20	15
Donaldson O/C	Caterpillar-Driltech-Schram	5	Westcliff	Joy 12cm 30	80
Donaldson O/C	Caterpillar/Dozer	8	Westcliff	Joy 12cm 32	4
Donaldson O/C	Loader/Caterpillar/Drill	4	Westcliff	Joy 4ls D.E.R.D.S.	100
Drayton O/C	Bucyrus Erie Be 1370 Dragline	5	Westside	Caterpillar	10
Drayton O/C	Cat Dump Trucks	5	Westside	Caterpillar Loaders Dozers	5
Drayton O/C	Caterpillar	4	Whitehaven CPP	Caterpillar Loader	4
			Whitehaven O/C	Caterpillar	5
			Whitehaven O/C	Reedmill-Caterpillar	5
			Wilpinjong O/C(Thiess)	Caterpillar Loader	3
Wilpinjong O/C(Thiess)	Crusher-Transfer Points	4	Wilpinjong O/C(Thiess)	Caterpillar/Dozer	5

Table 18: Mines that have Wind Direction recorded.

Ashton CPP	10	Liddell CPP	2
Ashton O/C	15	Liddell O/C	10
Austar Coal	9	Macquarie	4
Baal Bone	6	Metropolitan	4
Baal Bone O/C	9	Mt Arthur Coal Pty Limited	13
Bengalla	90	Mt Owen	32
Bloomfield CPP	8	Mt Thorley Warkworth	11
Bloomfield O/C	15	Muswellbrook O/C	23
Boggabri O/C(Downer Edi)	5	Narama	18
Bulga	40	Pine Dale O/C	5
Camberwell	20	Ravensworth East	5
Cen Angus Place P/L	2	Rixs Creek	19
Cen Newstan Pty Ltd	10	Springvale	5
Chain Valley	2	Stratford	19
Charbon	5	Tahmoor	6
Charbon O/C	24	Tarrowonga O/C	14
Clarence	10	Ulan - Surface Operations	22
Cullen Valley O/C	27	Ulan CPP	3
Cumnock Sth O/C	35	United CPP	9

Dartbrook	5	Wambo (O/C)	37
Donaldson O/C	28	Wambo CPP	4
Drayton O/C	14	Werris Creek Coal	5
Duralie O/C	32	Werris Creek O/C	7
Fassifern Auger Project (Newstan)	7	Westcliff	3
Hunter Valley CPP	5	Westside	15
Hunter Valley#10/C	29	Whitehaven CPP	4
Invincible O/C	9	Whitehaven O/C	10
Lamberts Gully O/C	10	Wilpinjong O/C(Thiess)	21

Table 19: Mines that have Rain recorded.

Mine	Count	Mine	Count
Ashton Cpp	10	Liddell Cpp	2
Ashton O/C	15	Liddell O/C	16
Austar Coal	9	Macquarie	4
Baal Bone	12	Metropolitan	4
Baal Bone Open Cut	9	Mt Arthur Coal Pty Limited	13
Bengalla	90	Mt Owen	32
Bloomfield Cpp	8	Mt Thorley Warkworth	11
Bloomfield O/C	16	Muswellbrook O/C	23
Boggabri Open Cut (Downer Edi)	5	Narama	18
Bulga	40	Pine Dale Open Cut	5
Camberwell	20	Ravensworth East	5
Centennial Angus Place P/L	2	Rixs Creek	19
Centennial Newstan Pty Ltd	19	Springvale	5
Chain Valley	2	Stratford	23
Charbon	5	Tahmoor	6
Charbon O/C	24	Tarrawonga Open Cut	14
Clarence	10	Ulan - Surface Operations	22
Cullen Valley Open Cut	27	Ulan Cpp	3
Cumnock Sth O/C	33	United Cpp	9
Dartbrook	5	Wambo (O/C)	37
Donaldson O/C	28	Wambo Cpp	4
Drayton O/C	14	Werris Creek Coal	5
Duralie O/C	32	Werris Creek Open Cut	7
Fassifern Auger Project (Newstan)	7	Westcliff	3
Hunter Valley Cpp	5	Westside	15
Hunter Valley No 1 O/C	29	Whitehaven Cpp	4

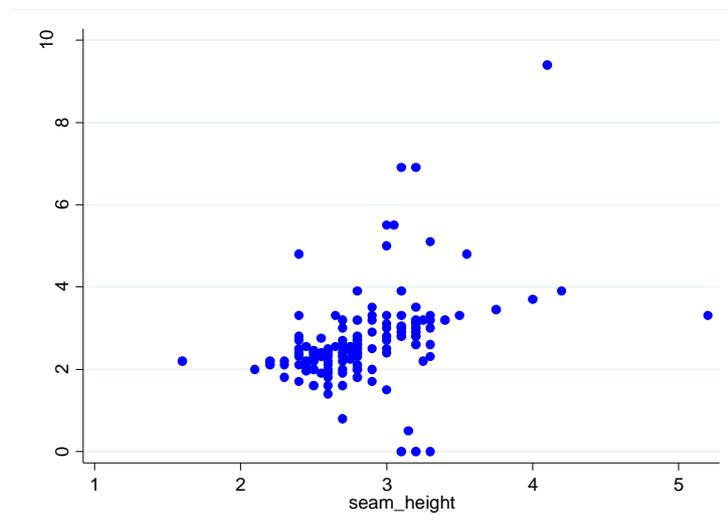
Invincible Open Cut	9	Whitehaven O/C	10
Lamberts Gully Open Cut	10	Wilpinjong Open Cut (Thiess)	21

Table 20: Occupation.

Occupation	Count	Occupation	Count
Auger Operator	4	M/G Shearer/Chock Op.	13
Bath. Attendant	1	Machine Man/General	11
Belt Inspection	6	Materials Driver	11
Bls Operator	8	Mine Manager	2
Bobcat Driver	6	Miner Driver	591
Boilermaker Operator	1	Office Duties	1
Boilermaker/Welder	8	On Shot	13
Boot End Man	13	Open Cut Examiner	4
Cableman	141	Outbye Man	3
Chockman	497	R/H Shuttle Car	186
Chockman Maingate	7	R/H Roof Bolter	233
Contractor	81	Ram Car Driver	6
Control Operator	9	Road Header Operator	24
Crusher Attendant	9	Roof Bolter	78
Deputy	555	Scraper Driver	1
Dozer Driver	101	Screen Attendant	1
Dragline Operator	6	Serviceman	1
Driller	80	Shearer Operator	123
Dust Sampling Officer	24	Shearer Operator M/G	191
Eimco Driver	70	Shearer Operator T/G	134
Elect. Operator	11	Shift Boss	2
Electrician	105	Shiftman	34
Excavator Driver	52	Shoffirer	102
Face Operator	2	Shovel Driver	8
Field Maintenance	8	Shuttle Car Driver	208
Fitter	173	Spare Man	2
Fitter Operator	31	Sprayer	1
Fitter Surface	33	Stemming Shot	8
General Surface	13	Stone Duster	2
General U/G	33	Supervisor	9
Grader Driver	34	Surveyor	7
Grouting	6	T/G Shearer/Chock Op.	13
Hopper	1	Timberman	3

Input Crusher	1	Trainee	5
Instructor	1	Trainee - Production	2
L/H Shuttle Car	190	Truck Driver	108
L/H Roof Bolter	402	Undermanager	1
Loader Driver	52	Uni-Hauler Driver	2
Loading Shot	7	Ventilation-Sealer	2
Longwall Co-Ordinator	1	Wagner L.H.D.	3
Longwall Supervisor	1	Washery Operator	97
M/G Operator	72	Water Cart Driver	12

Table 21: Seam Height and Thickness.



Height	Thickness	Height	Thickness	Height	Thickness	Height	Thickness
1.5	.	2.6	1.6	2.8	3.9	3.2	3.1
1.6	2.2	2.6	1.8	2.8	.	3.2	3.15
1.8	.	2.6	1.9	2.85	.	3.2	3.2
2	.	2.6	2	2.9	1.7	3.2	3.5
2.1	2	2.6	2.1	2.9	2	3.2	6.9
2.1	.	2.6	2.2	2.9	2.5	3.2	.
2.2	2.1	2.6	2.3	2.9	2.9	3.25	2.2
2.2	2.2	2.6	2.4	2.9	3.2	3.25	3.2
2.2	.	2.6	2.45	2.9	3.3	3.3	0
2.3	1.8	2.6	2.5	2.9	3.5	3.3	2.3
2.3	2.1	2.6	.	2.9	.	3.3	2.6
2.3	2.2	2.65	2.55	2.95	.	3.3	3
2.3	.	2.65	3.3	3	1.5	3.3	3.2
2.4	1.7	2.65	.	3	2.4	3.3	3.3

2.4 2.1	2.7 .8	3 2.5	3.3 5.1
2.4 2.3	2.7 1.6	3 2.7	3.3 .
2.4 2.35	2.7 1.9	3 2.8	3.4 3.2
2.4 2.4	2.7 2	3 3	3.4 .
2.4 2.5	2.7 2.2	3 3.1	3.5 3.3
2.4 2.7	2.7 2.3	3 3.3	3.5 .
2.4 2.8	2.7 2.4	3 5	3.55 4.8
2.4 3.3	2.7 2.5	3 5.5	3.6 .
2.4 4.8	2.7 2.6	3 .	3.7 .
2.4 .	2.7 2.7	3.05 5.5	3.75 3.45
2.45 1.95	2.7 3	3.05 .	3.8 .
2.45 2.05	2.7 3.2	3.1 0	3.9 .
2.45 2.2	2.7 .	3.1 2.8	4 3.7
2.45 2.55	2.75 2.25	3.1 2.9	4 .
2.5 1.6	2.75 2.45	3.1 3	4.1 9.4
2.5 2	2.75 2.55	3.1 3.05	4.1 .
2.5 2.2	2.75 .	3.1 3.3	4.2 3.9
2.5 2.25	2.8 1.8	3.1 3.9	4.2 .
2.5 2.3	2.8 2	3.1 6.9	4.3 .
2.5 2.4	2.8 2.1	3.1 .	4.5 .
2.5 2.45	2.8 2.3	3.15 .5	4.6 .
2.5 .	2.8 2.4	3.15 .	4.7 .
2.55 1.9	2.8 2.5	3.2 0	4.8 .
2.55 2.3	2.8 2.6	3.2 2.6	5.2 3.3
2.55 2.4	2.8 2.7	3.2 2.8	. 2.2
2.55 2.75	2.8 2.8	3.2 2.9	. 2.4
2.6 1.4	2.8 3.2	3.2 3	. 2.8

Table 22: Occupation and Mine Type.

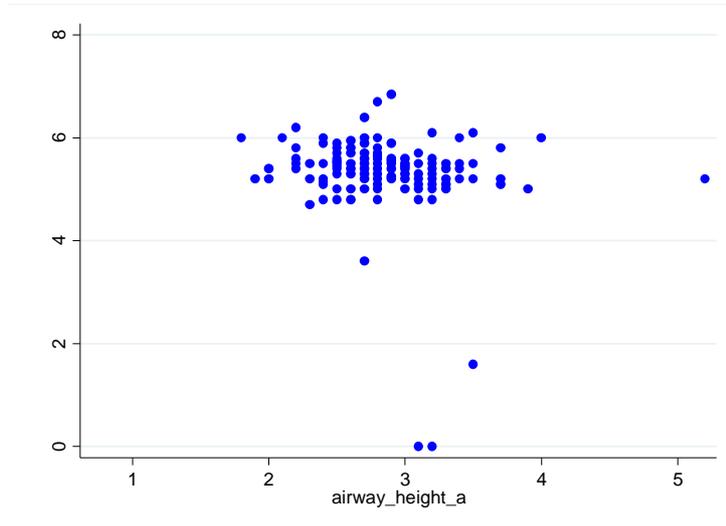
Mine Type	Occupation	#	Mine Type	Occupation	#
Open Cut, Washeries & Loading Stations	Auger Operator	4	Underground - Longwall	Longwall Supervisor	1
Open Cut, Washeries & Loading Stations	Bath. Attendant	1	Underground - Longwall	M/G Operator	72
Open Cut, Washeries & Loading Stations	Bobcat Driver	6	Underground - Longwall	M/G Shearer/Chock Op.	13
Open Cut, Washeries & Loading Stations	Boilermaker Operator	1	Underground - Longwall	Machine Man/General	5
Open Cut, Washeries & Loading	Boilermaker/Welder	8	Underground - Longwall	Mine Manager	2

Stations					
Open Cut, Washeries & Loading Stations	Contractor	6	Underground - Longwall	Shearer Operator	123
Open Cut, Washeries & Loading Stations	Control Operator	9	Underground - Longwall	Shearer Operator M/G	191
Open Cut, Washeries & Loading Stations	Crusher Attendant	9	Underground - Longwall	Shearer Operator T/G	134
Open Cut, Washeries & Loading Stations	Dozer Driver	101	Underground - Longwall	T/G Shearer/Chock Op.	13
Open Cut, Washeries & Loading Stations	Dragline Operator	6	Underground - Longwall	Trainee - Production	1
Open Cut, Washeries & Loading Stations	Driller	76	Underground - not Longwall	Belt Inspection	6
Open Cut, Washeries & Loading Stations	Elect. Operator	8	Underground - not Longwall	Boot End Man	1
Open Cut, Washeries & Loading Stations	Electrician	14	Underground - not Longwall	Cableman	141
Open Cut, Washeries & Loading Stations	Excavator Driver	52	Underground - not Longwall	Contractor	73
Open Cut, Washeries & Loading Stations	Field Maintenance	8	Underground - not Longwall	Deputy	352
Open Cut, Washeries & Loading Stations	Fitter	5	Underground - not Longwall	Driller	4
Open Cut, Washeries & Loading Stations	Fitter Operator	18	Underground - not Longwall	Dust Sampling Officer	22
Open Cut, Washeries & Loading Stations	Fitter Surface	33	Underground - not Longwall	Eimco Driver	67
Open Cut, Washeries & Loading Stations	General Surface	11	Underground - not Longwall	Elect. Operator	3
Open Cut, Washeries & Loading Stations	Grader Driver	34	Underground - not Longwall	Electrician	59
Open Cut, Washeries & Loading Stations	Inpit Crusher	1	Underground - not Longwall	Face Operator	2
Open Cut, Washeries & Loading Stations	Loader Driver	52	Underground - not Longwall	Fitter	82
Open Cut, Washeries & Loading Stations	Loading Shot	7	Underground - not Longwall	Fitter Operator	8
Open Cut, Washeries & Loading Stations	Office Duties	1	Underground - not Longwall	General Surface	2
Open Cut, Washeries & Loading Stations	On Shot	13	Underground - not Longwall	General U/G	33
Open Cut, Washeries & Loading Stations	Open Cut Examiner	4	Underground - not Longwall	Grouting	6
Open Cut, Washeries & Loading Stations	Scraper Driver	1	Underground - not Longwall	Hopper	1
Open Cut, Washeries & Loading Stations	Screen Attendant	1	Underground - not Longwall	L/H Shuttle Car	190

Open Cut, Washeries & Loading Stations	Serviceman	1	Underground - not Longwall	L/H Roof Bolter	402
Open Cut, Washeries & Loading Stations	Shotfirer	102	Underground - not Longwall	Machine Man/General	6
Open Cut, Washeries & Loading Stations	Shovel Driver	8	Underground - not Longwall	Materials Driver	11
Open Cut, Washeries & Loading Stations	Spare Man	1	Underground - not Longwall	Miner Driver	591
Open Cut, Washeries & Loading Stations	Stemming Shot	8	Underground - not Longwall	Outbye Man	3
Open Cut, Washeries & Loading Stations	Supervisor	4	Underground - not Longwall	R/H Shuttle Car	186
Open Cut, Washeries & Loading Stations	Surveyor	7	Underground - not Longwall	R/H Roof Bolter	233
Open Cut, Washeries & Loading Stations	Trainee	2	Underground - not Longwall	Ram Car Driver	6
Open Cut, Washeries & Loading Stations	Truck Driver	108	Underground - not Longwall	Road Header Operator	24
Open Cut, Washeries & Loading Stations	Washery Operator	94	Underground - not Longwall	Roof Bolter	78
Open Cut, Washeries & Loading Stations	Water Cart Driver	12	Underground - not Longwall	Shift Boss	2
Underground - Longwall	Bls Operator	8	Underground - not Longwall	Shiftman	34
Underground - Longwall	Boot End Man	12	Underground - not Longwall	Shuttle Car Driver	208
Underground - Longwall	Chockman	497	Underground - not Longwall	Spare Man	1
Underground - Longwall	Chockman Maingate	7	Underground - not Longwall	Sprayer	1
Underground - Longwall	Contractor	2	Underground - not Longwall	Stone Duster	2
Underground - Longwall	Deputy	203	Underground - not Longwall	Supervisor	5
Underground - Longwall	Dust Sampling Officer	2	Underground - not Longwall	Timberman	3
Underground - Longwall	Eimco Driver	3	Underground - not Longwall	Trainee	3
Underground - Longwall	Electrician	32	Underground - not Longwall	Trainee - Production	1
Underground - Longwall	Fitter	86	Underground - not Longwall	Undermanager	1
Underground - Longwall	Fitter Operator	5	Underground - not Longwall	Uni-Hauler Driver	2
Underground - Longwall	Instructor	1	Underground - not Longwall	Ventilation-Sealer	2
Underground - Longwall	Longwall Co-	1	Underground - not	Wagner L.H.D.	3

	Ordinator		Longwall		
			Underground - not Longwall	Washery Operator	3

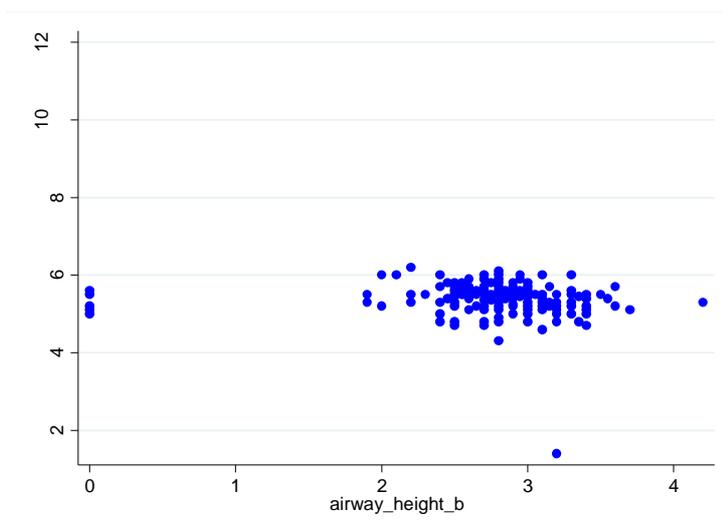
Table 23: Airway Height and Width A.



Height	Width	Height	Width	Height	Width	Height	Width
.7	.	2.5	5.7	2.8	5.7	3.2	5.1
1.8	6	2.5	5.8	2.8	5.8	3.2	5.2
1.9	5.2	2.5	5.9	2.8	6	3.2	5.3
2	5.2	2.5	.	2.8	6.7	3.2	5.4
2	5.4	2.6	4.8	2.8	.	3.2	5.5
2.1	6	2.6	5	2.9	5.2	3.2	5.6
2.1	.	2.6	5.3	2.9	5.25	3.2	6.1
2.2	5.4	2.6	5.4	2.9	5.4	3.2	.
2.2	5.5	2.6	5.5	2.9	5.5	3.3	5
2.2	5.6	2.6	5.7	2.9	5.55	3.3	5.1
2.2	5.8	2.6	5.8	2.9	5.6	3.3	5.2
2.2	6.2	2.6	5.95	2.9	5.9	3.3	5.4
2.2	.	2.6	.	2.9	6.85	3.3	5.5
2.3	4.7	2.7	3.6	2.9	.	3.3	.
2.3	5.2	2.7	5	3	5	3.4	5.2
2.3	5.5	2.7	5.2	3	5.2	3.4	5.4
2.3	.	2.7	5.3	3	5.3	3.4	5.5
2.4	4.8	2.7	5.4	3	5.4	3.4	6
2.4	5.1	2.7	5.5	3	5.45	3.4	.
2.4	5.15	2.7	5.6	3	5.5	3.5	1.6

2.4 5.2	2.7 5.7	3 5.6	3.5 5.2
2.4 5.5	2.7 5.9	3 .	3.5 5.5
2.4 5.9	2.7 6	3.1 0	3.5 6.1
2.4 6	2.7 6.4	3.1 4.8	3.5 .
2.4 .	2.7 .	3.1 5	3.6 .
2.5 4.8	2.8 4.8	3.1 5.1	3.7 5.1
2.5 5	2.8 5	3.1 5.2	3.7 5.2
2.5 5.3	2.8 5.1	3.1 5.3	3.7 5.8
2.5 5.4	2.8 5.2	3.1 5.5	3.9 5
2.5 5.45	2.8 5.3	3.1 5.7	3.9 .
2.5 5.5	2.8 5.4	3.1 .	4 6
2.5 5.52	2.8 5.5	3.2 0	4.3 .
2.5 5.55	2.8 5.6	3.2 4.8	5.2 5.2
2.5 5.6	2.8 5.65	3.2 5	

Table 24: Airway Height and Width B.



0 5	2.6 5.7	2.9 5.6	3.3 5.5
0 5.1	2.6 5.9	2.9 5.7	3.3 5.6
0 5.2	2.65 5.2	2.9 5.8	3.3 6
0 5.5	2.65 5.5	2.95 5.45	3.35 4.8
0 5.6	2.65 5.6	2.95 5.5	3.35 5.45
1.9 5.3	2.7 4.7	2.95 5.55	3.4 4.7
1.9 5.5	2.7 4.8	2.95 5.6	3.4 5
2 5.2	2.7 5.1	2.95 5.9	3.4 5.1
2 6	2.7 5.2	2.95 6	3.4 5.2
2.1 6	2.7 5.35	3 4.8	3.4 5.4

2.2 5.3	2.7 5.5	3 5	3.4 5.5
2.2 5.5	2.7 5.6	3 5.1	3.5 5.5
2.2 6.2	2.7 5.7	3 5.2	3.55 5.4
2.3 5.5	2.7 5.9	3 5.3	3.6 5.2
2.4 4.8	2.7 6	3 5.45	3.6 5.7
2.4 5	2.75 5.35	3 5.5	3.7 5.1
2.4 5.3	2.75 5.4	3 5.6	4.2 5.3
2.4 5.7	2.75 5.5	3 5.7	. 4.2
2.4 6	2.75 5.8	3 5.8	. 4.6
2.45 5.4	2.8 4.3	3.05 5.5	. 4.7
2.45 5.8	2.8 4.8	3.1 4.6	. 4.8
2.5 4.7	2.8 4.9	3.1 5.1	. 4.9
2.5 4.8	2.8 5.1	3.1 5.2	. 5
2.5 5.2	2.8 5.2	3.1 5.3	. 5.1
2.5 5.3	2.8 5.3	3.1 5.4	. 5.2
2.5 5.45	2.8 5.5	3.1 5.5	. 5.3
2.5 5.5	2.8 5.6	3.1 6	. 5.4
2.5 5.6	2.8 5.7	3.15 5.2	. 5.5
2.5 5.7	2.8 5.8	3.15 5.25	. 5.6
2.5 5.75	2.8 5.9	3.15 5.3	. 5.7
2.5 5.8	2.8 6	3.15 5.7	. 5.8
2.55 5.5	2.8 6.1	3.2 1.4	. 6
2.55 5.6	2.85 5.4	3.2 4.8	. 6.3
2.55 5.7	2.85 5.5	3.2 5	. 6.4
2.55 5.8	2.85 5.6	3.2 5.1	. 6.5
2.56 5.5	2.9 5	3.2 5.2	. 7.5
2.6 5.1	2.9 5.2	3.2 5.3	. 8
2.6 5.4	2.9 5.25	3.2 5.5	. 11.2
2.6 5.45	2.9 5.4	3.3 5	
2.6 5.5	2.9 5.5	3.3 5.2	
2.6 5.6	2.9 5.55	3.3 5.3	

Table 25: Air Quantity and Velocity 1.

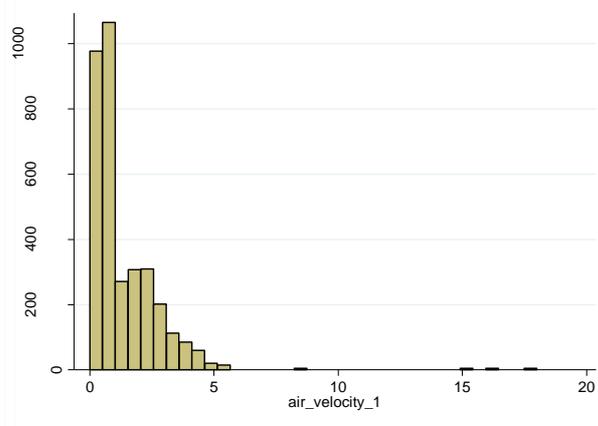
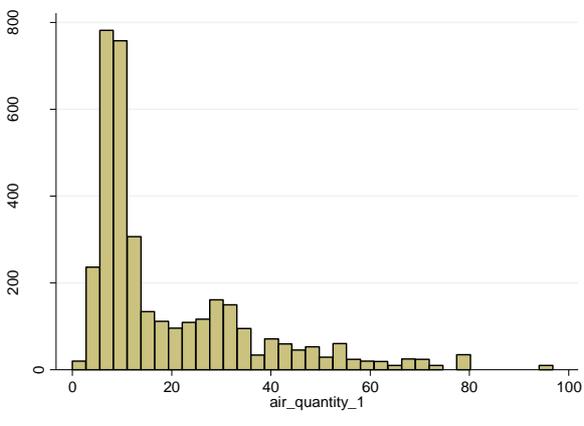
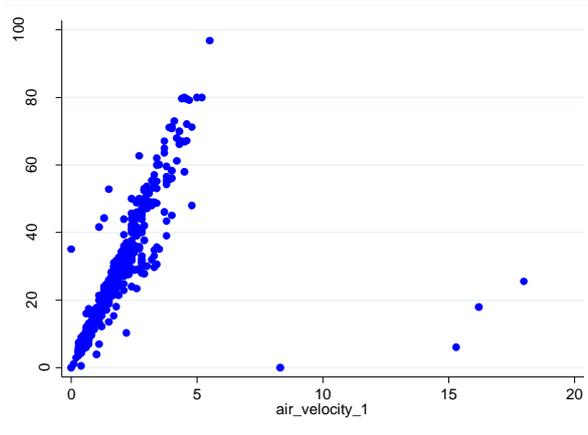
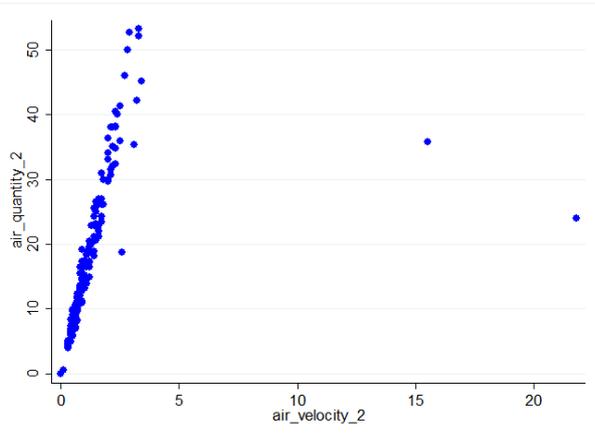


Table 26: Air Quantity and Velocity 2.



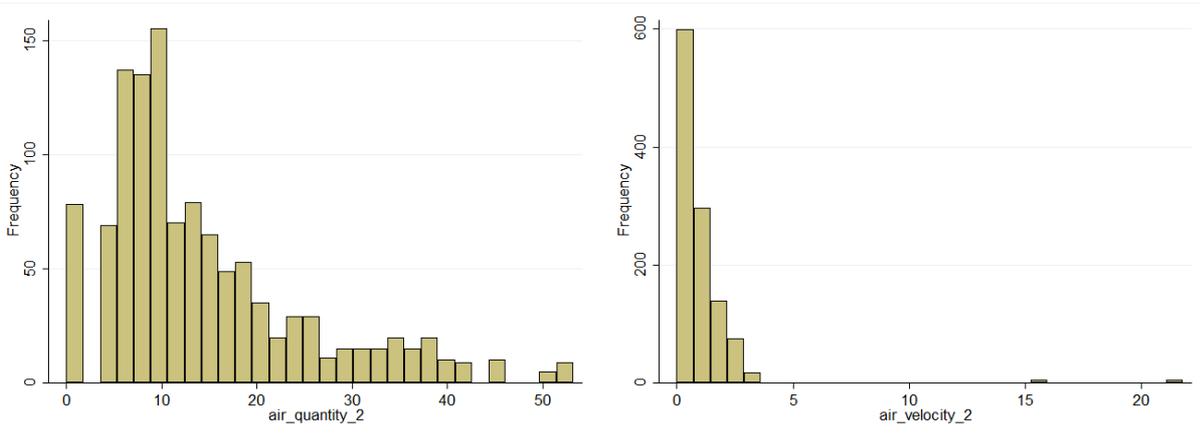


Table 27: Air Quantity and Velocity 3.

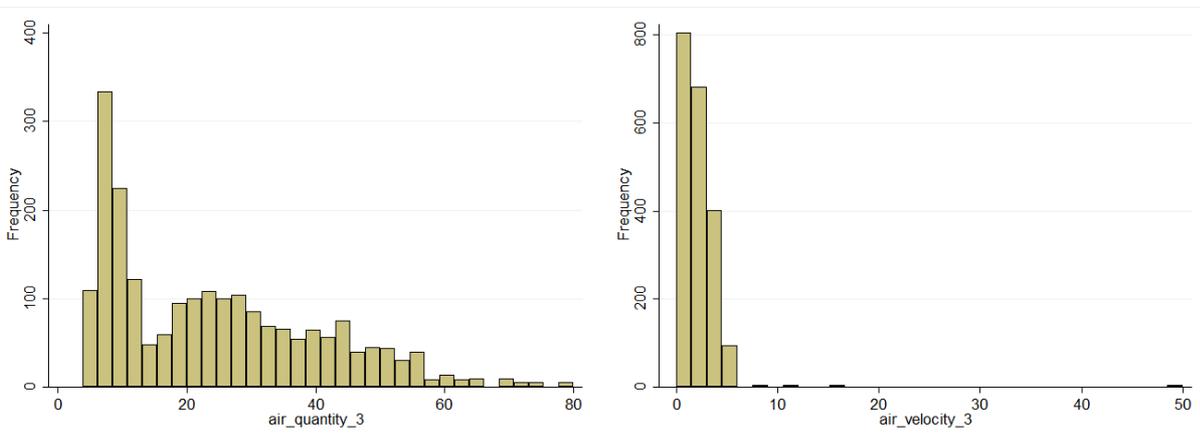
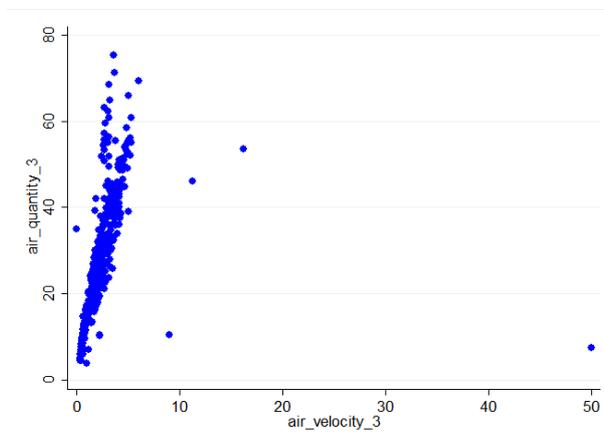


Table 28: Air Quantity and Velocity 4.

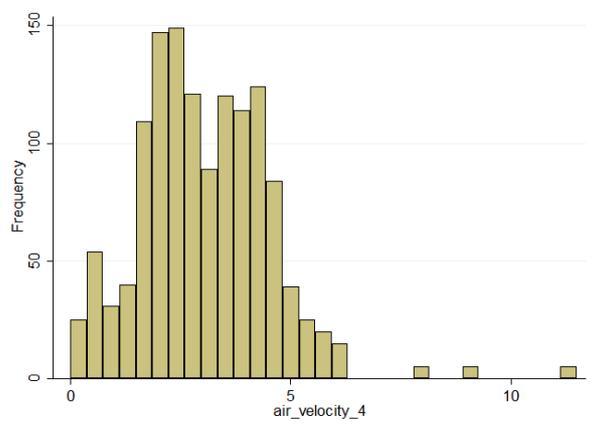
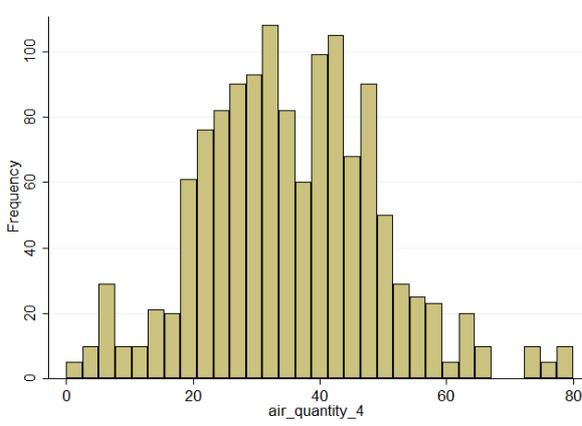
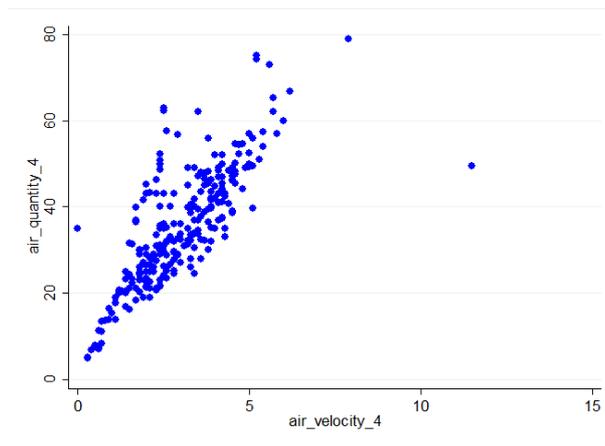


Table 29: Air Quantity and Velocity 5.

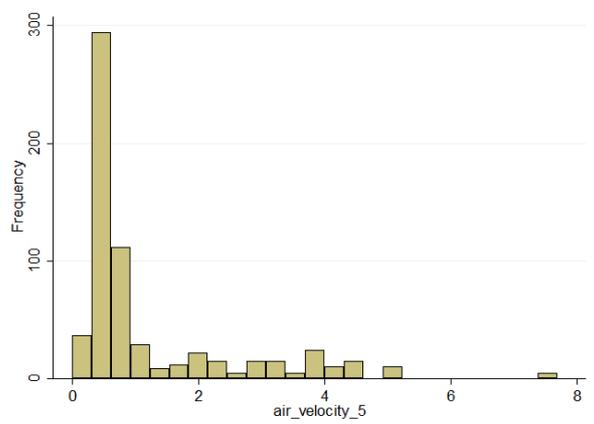
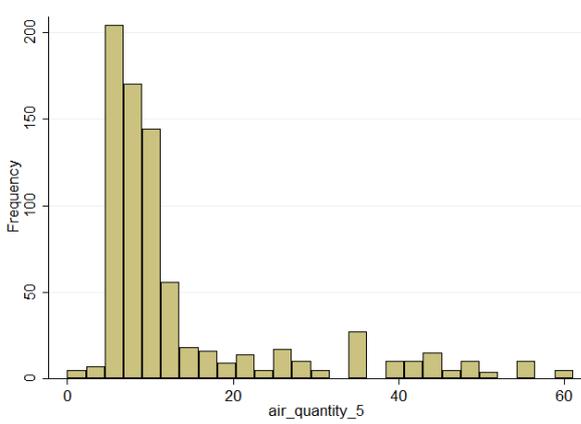
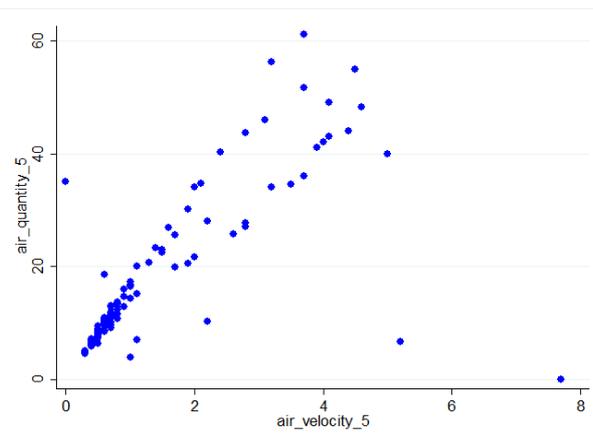


Table 30: Air Quantity and Velocity 6.

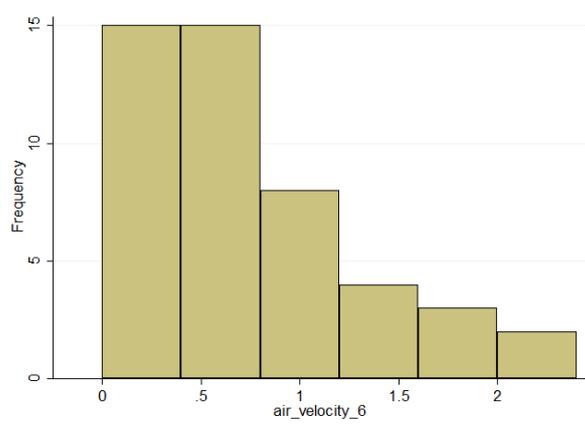
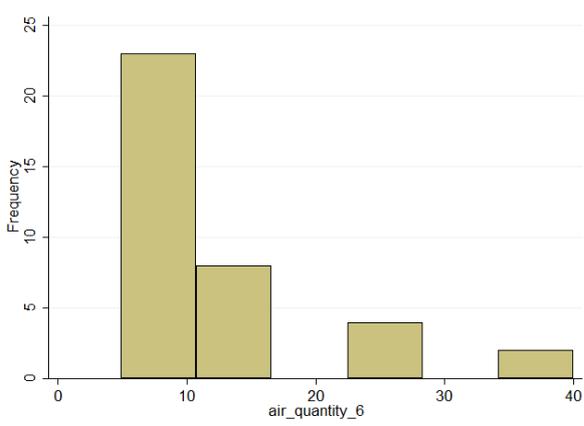
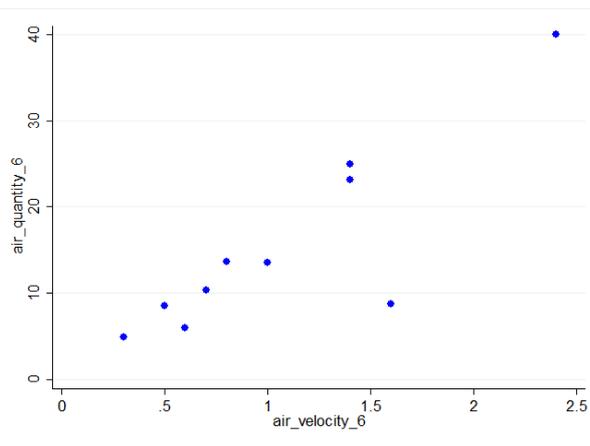


Table 31: Air Quantity and Velocity 7.

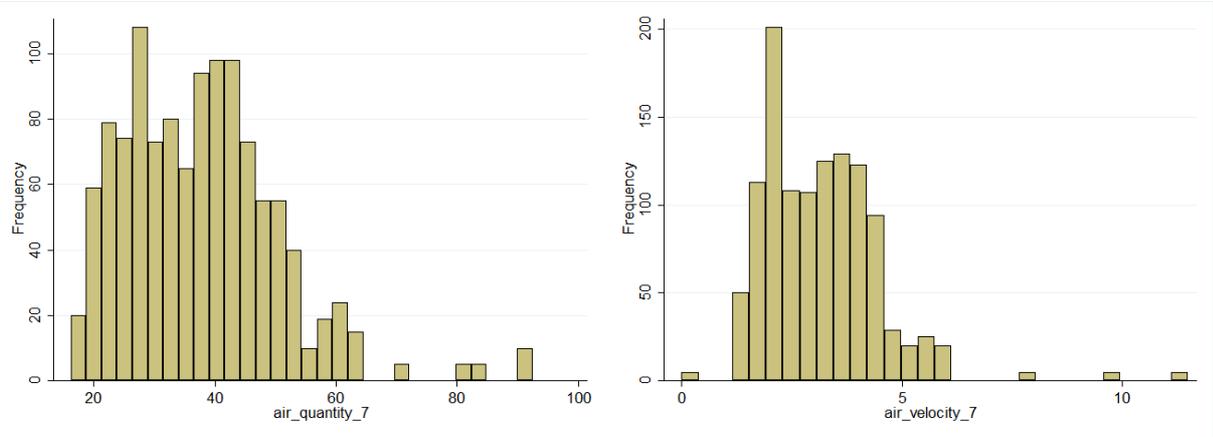
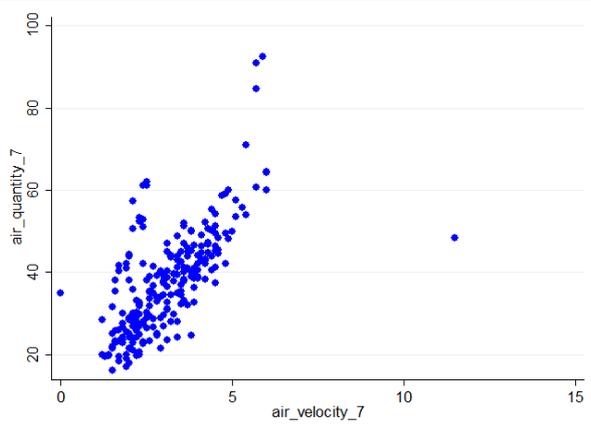
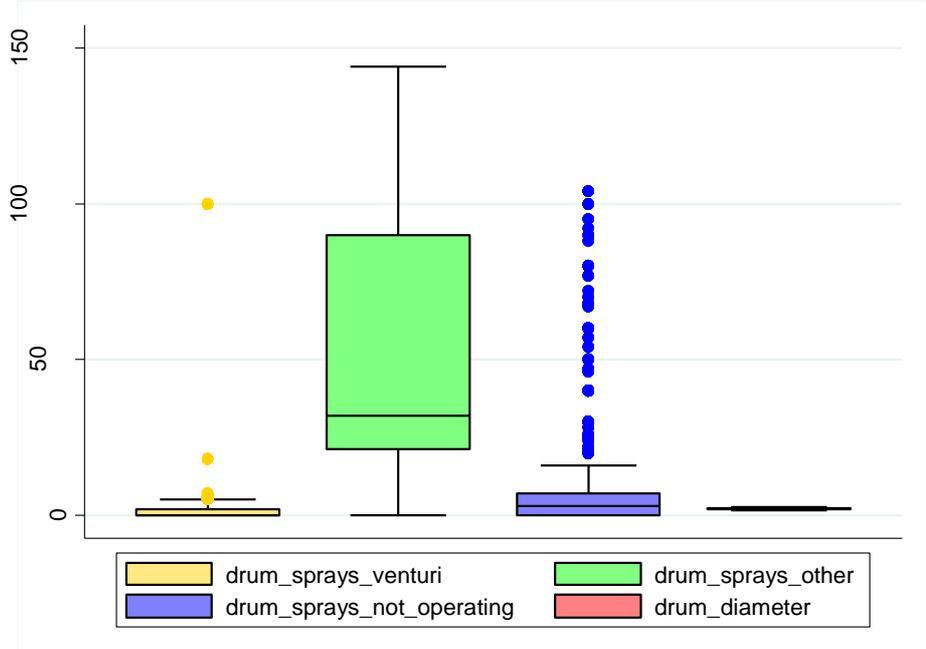
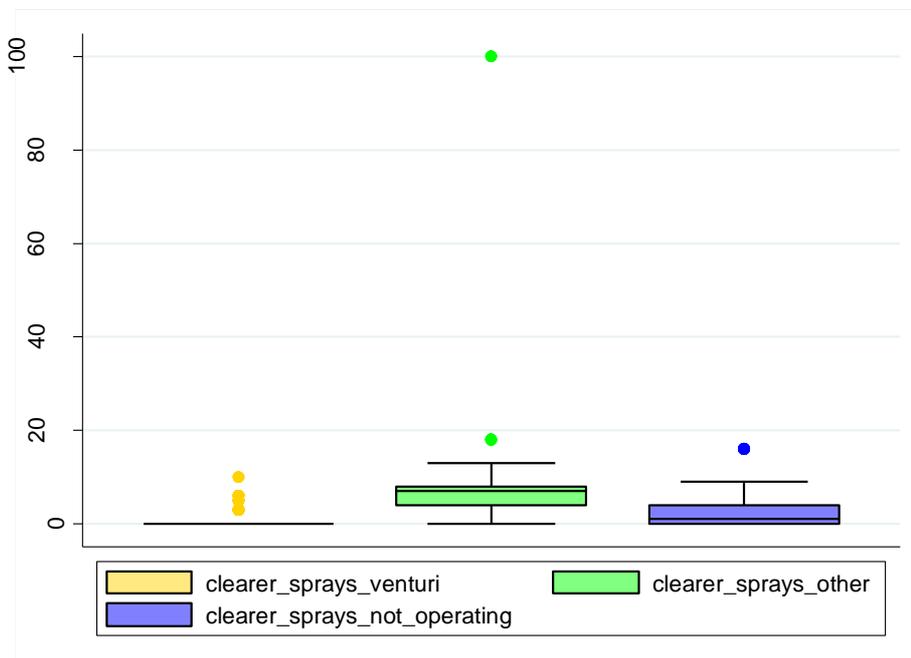


Table 32: Drum sprays.



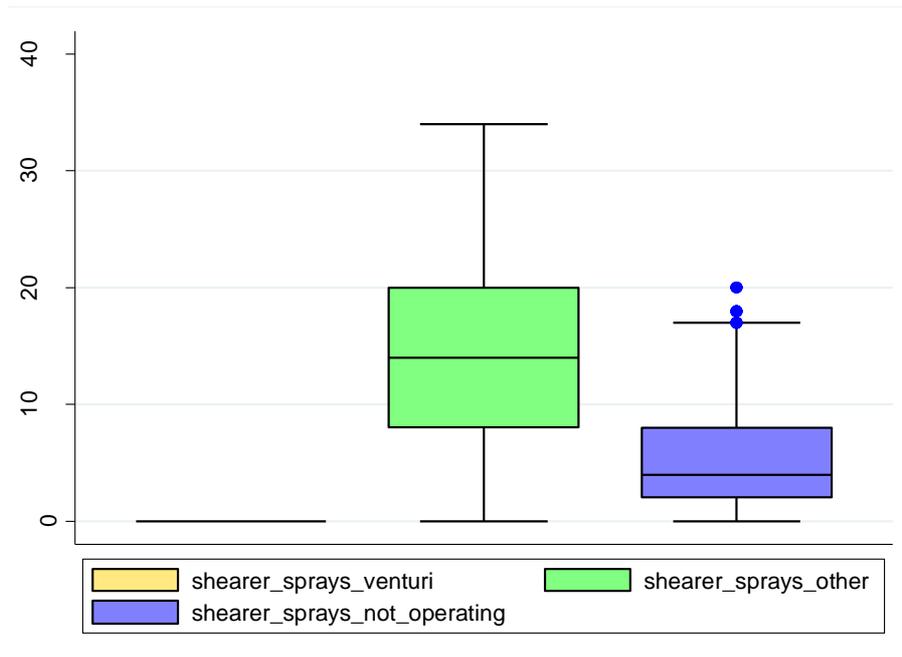
Variable	Obs	Mean	Std. Dev.	Min	Max
drum_spray~i	1718	1.226426	5.610795	0	100
drum_spray~r	4088	51.35934	40.9016	0	144
drum_spray~g	3191	8.301473	15.60012	0	104
drum_diame~r	1399	2.088528	.273752	1.65	2.6

Table 33: Clearer sprays.



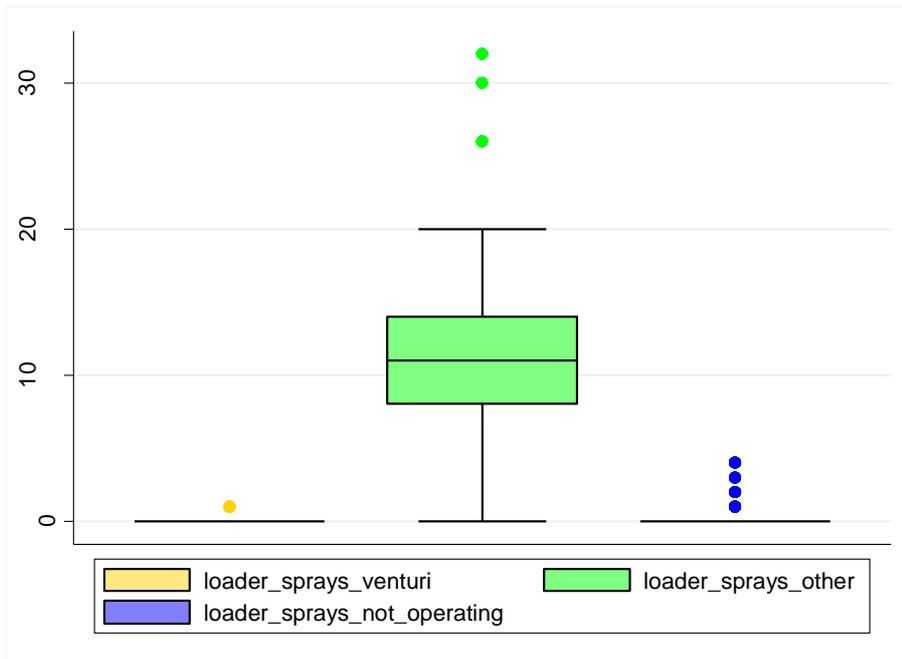
Variable	Obs	Mean	Std. Dev.	Min	Max
clearer_sp~i	576	.8576389	1.826532	0	10
clearer_sp~r	979	6.51379	7.503821	0	100
clearer_sp~g	654	2.577982	3.098565	0	16

Table 34: Shearer sprays.



Variable	Obs	Mean	Std. Dev.	Min	Max
shearer_sp~i	479	0	0	0	0
shearer_sp~r	1219	15.19852	8.564062	0	34
shearer_sp~g	791	5.378003	4.241742	0	20

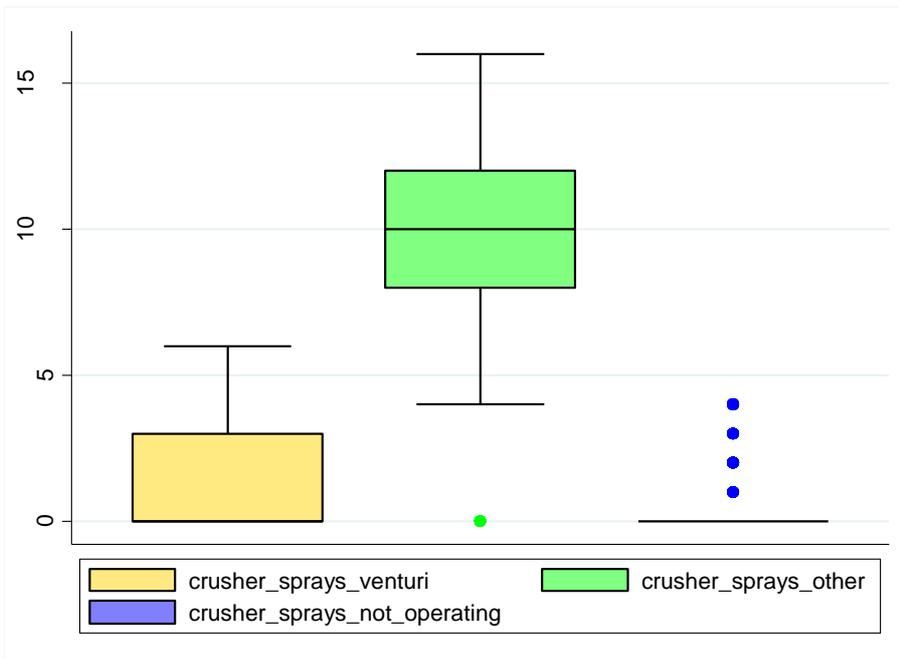
Table 35: Loader sprays.



Variable | Obs Mean Std. Dev. Min Max

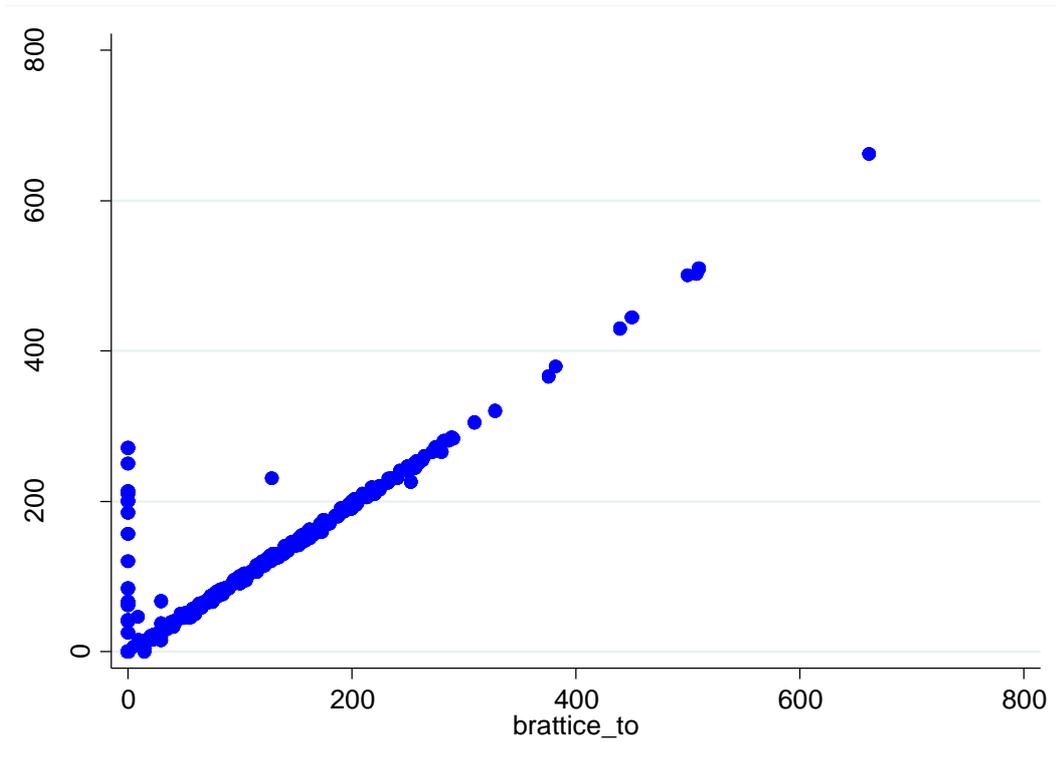
Variable	Obs	Mean	Std. Dev.	Min	Max
loader_spr~i	489	.0490798	.2162558	0	1
loader_spr~r	1338	12.0426	7.417589	0	32
loader_spr~g	578	.4152249	1.036881	0	4

Table 36: Crusher sprays.



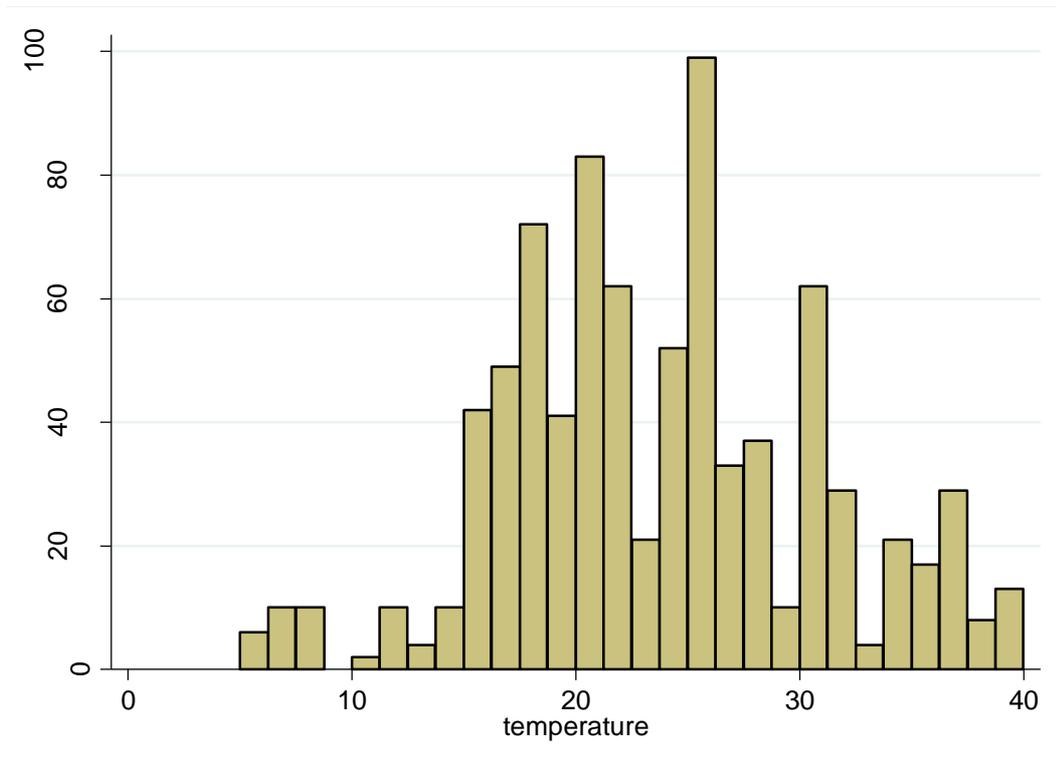
Variable	Obs	Mean	Std. Dev.	Min	Max
crusher_sp~i	678	1.405605	2.262487	0	6
crusher_sp~r	1327	9.604371	3.30926	0	16
crusher_sp~g	553	.4159132	.9558553	0	4

Table 37: Brattice to and from.



Variable	Obs	Mean	Std. Dev.	Min	Max	
brattice_to	1478	126.2639	95.35513	0	662	
brattice_f~m			2039	121.0736	92.07418	
					0	662

Table 38: Temperature.

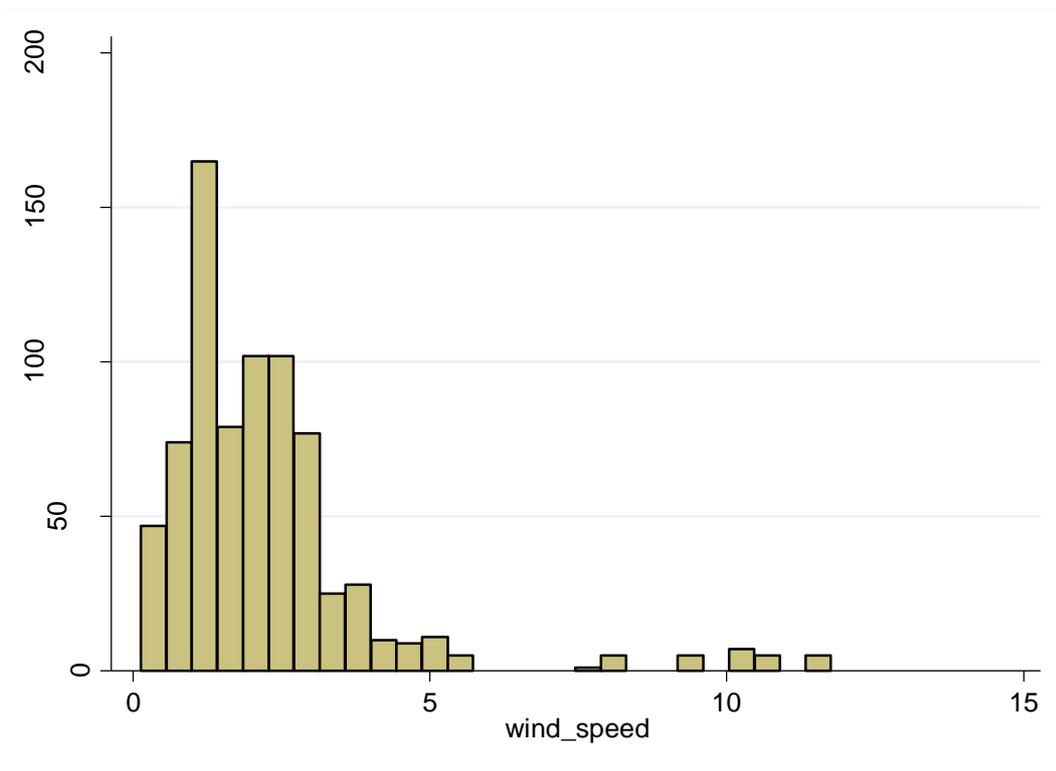


Variable	Obs	Mean	Std. Dev.	Min	Max
----------	-----	------	-----------	-----	-----

-----+-----

temperature	836	23.66866	6.986833	5	40
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Table 39: Wind speed.



Variable	Obs	Mean	Std. Dev.	Min	Max
-----+-----					
wind_speed	762	2.265814	1.86165	.13	11.76

Table 40: Quartz.

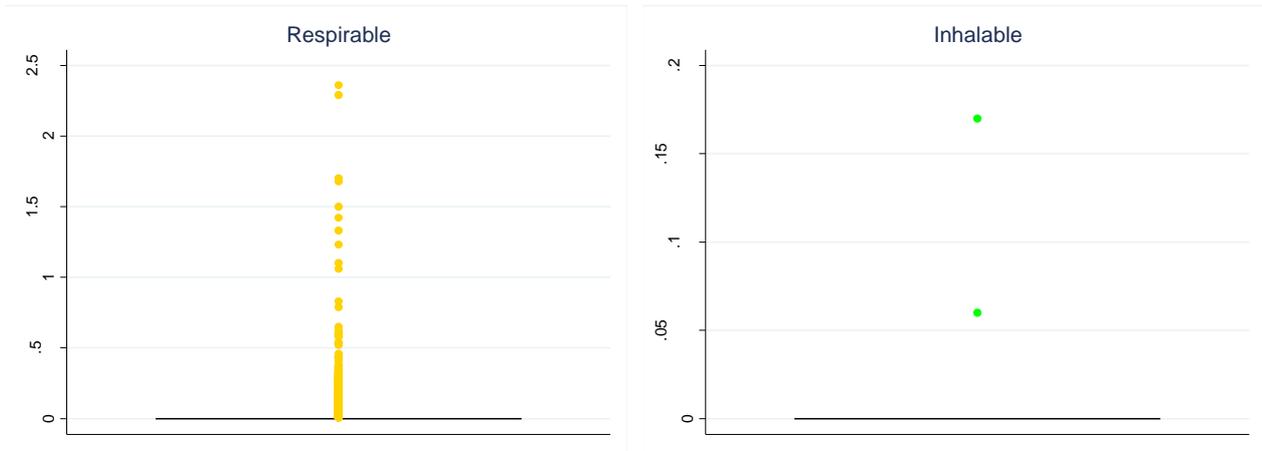


Table 41: Result.

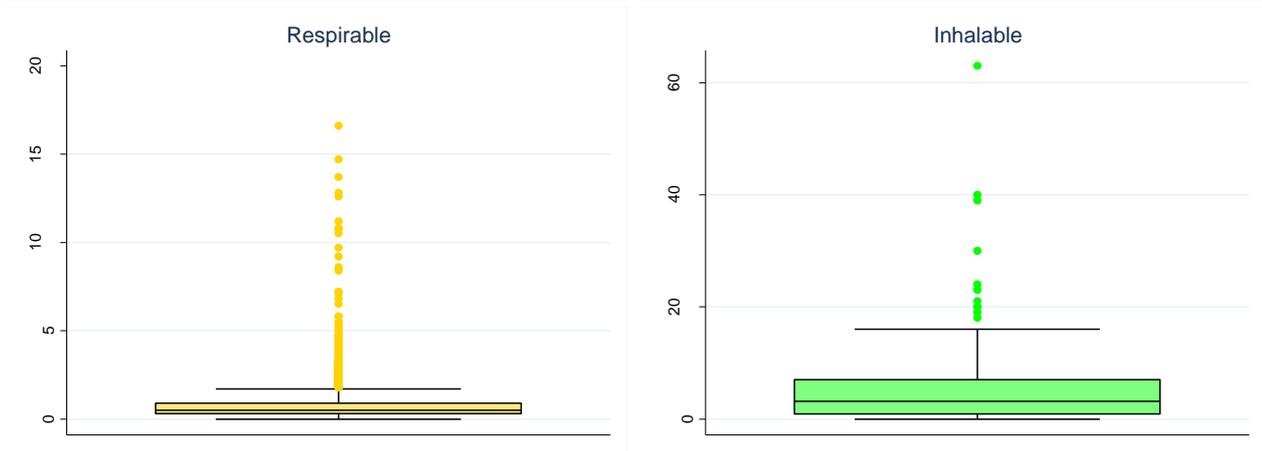
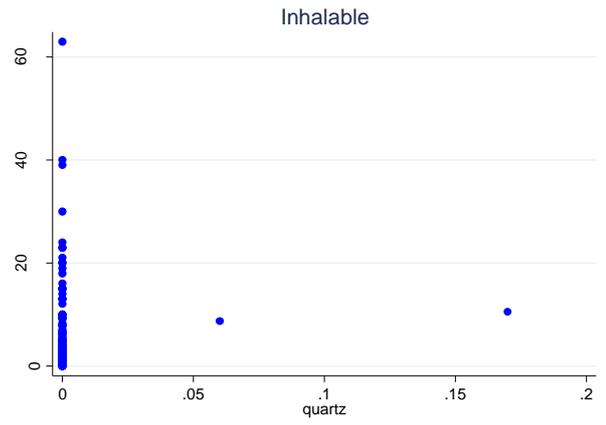
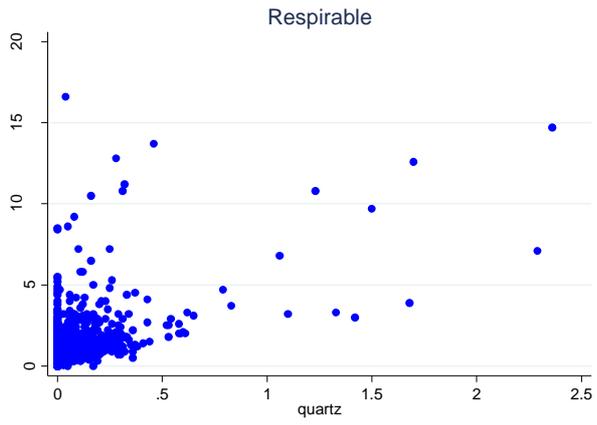


Table 42: Result and Quartz.

Variable	Obs	Mean	Std. Dev.	Min	Max
----------	-----	------	-----------	-----	-----

result	5115	.8678006	1.863463	0	63
quartz	5115	.0174878	.0901142	0	2.36



Appendix 3 – Example of Reformatted MineCheck Report.

Order 42 Compliance Report	Reporting Period January to April 2013
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Mine Name: ???	Mine Type: Underground
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Introduction

Coal Service’s Occupational Hygiene Services (OHyS) undertakes the statutory dust sampling at your mine to meet the requirements of the Coal Mines Health Act 2001 (Order No 42). The Order requires **Dust Sampling** of both respirable dust, sampled in accordance with AS 2985-2009 and inhalable dust in accordance with AS 2985-2009. For more information on sampling requirements, see Attachment 1.

This report presents statutory dust sampling results taken at your mine in accordance with Order 42 for your mine. It presents sampling results by type of mine being undertaken at the time of sampling. In addition, it shows your mine in comparison to your district and the state of the last 5 years. For guidance in interpreting results see Attachment 2.

Executive Summary: Level of control in the last 6 months

LONGWALL			CONTINUOUS MINING			CEMENT PRODUCTION
Respirable Dust	Respirable Quartz-Containing Dust	Inhalable Dust	Respirable Dust	Respirable Quartz-Containing Dust	Inhalable Dust	Inhalable Dust

Summary of results

(EXAMPLE OF FEEDBACK) LONGWALL:

Respirable dust was well controlled

Respirable dust with quartz was highly controlled in the current reporting period. In fact, the 95th percentile of respirable coal dust and dust with quartz was low compared to the remainder of the state.

Inhalable dust was poorly controlled, as it has been frequently in the last 5 years. Existing control failures for inhalable coal dust require urgent investigation.

CONTINUOUS MINING

Respirable dust was well controlled

Respirable quartz-containing dust was well controlled

Inhalable dust was controlled. Existing control measure need evaluation to bring these activities back to well controlled.

CEMENT PRODUCTS:

Inhalable dust

UNDERGROUND OTHER:

Respirable dust

Respirable dust with quartz

Inhalable dust

How to Interpret Graphical Results

The graph shows the 95th percentile of sample results. For example, if 100 samples were taken, these 100 results would be sorted and the 95th largest is known as the 95th percentile. The results greater than the 95th percentile.

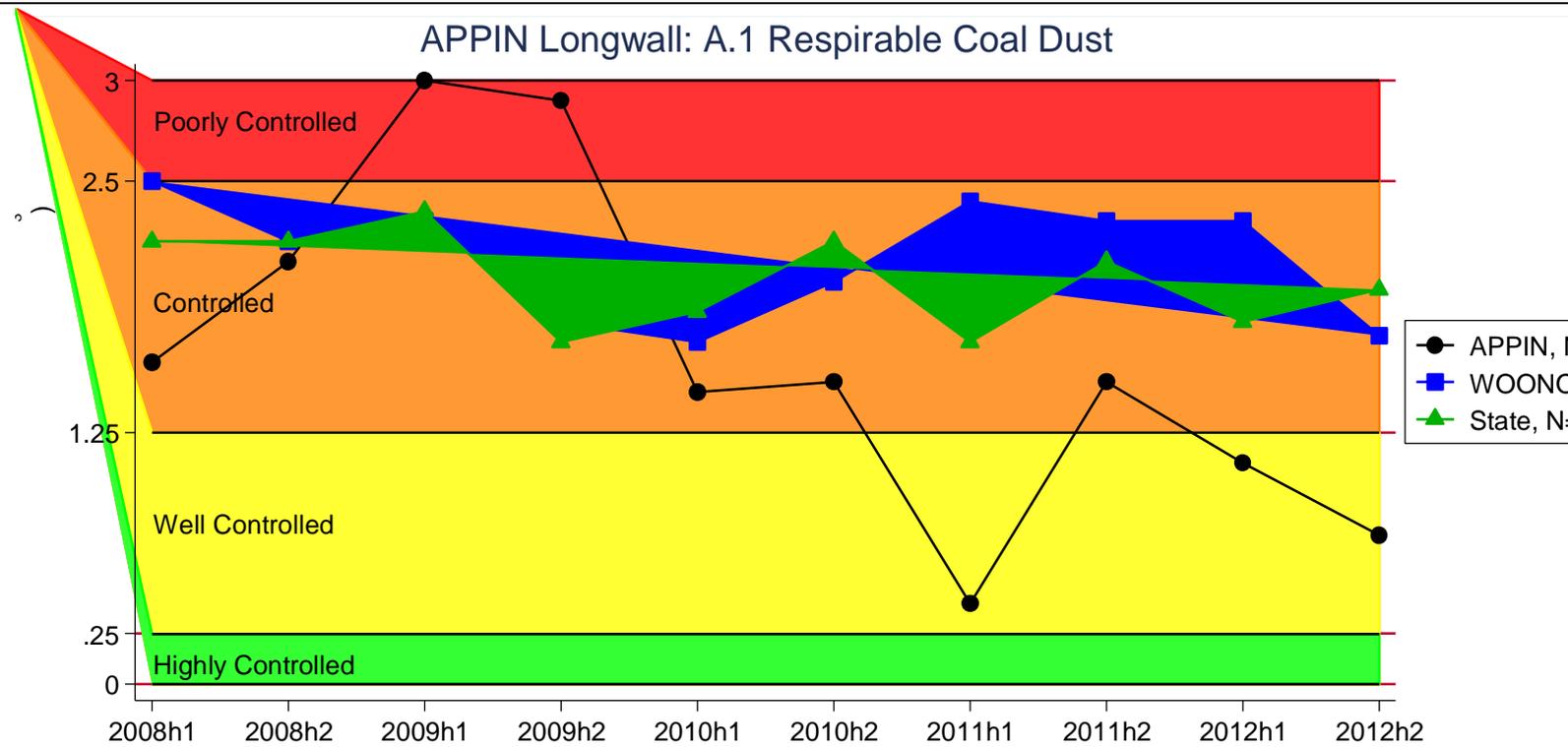
You will note that your graphs are colour coded. The legend for the colours are shown in the table below. The ratings of control have been discussed extensively in the strategy showing that all employees exposed below the Permissible Exposure Limit, at least with a 95% certainty, is compelling evidence that the exposure limits are being met.

Exposure Rating	Control zone description	General description
4	Poorly controlled	95 th percentile of exposures exceeds the OEL.
3	Controlled	95 th percentile of exposures rarely exceeds the OEL.
2	Well controlled	95 th percentile of exposures rarely exceeds 50% of the OEL.
1	Highly Controlled	95 th percentile of exposures rarely exceeds 10% of the OEL.

A.1 Respirable Dust - (Underground - Longwall)

Respirable dust refers to dust below 5um in diameter that may reach the alveoli in the lung and cause pneumoconiosis with long-term repeated over exposure

Summary of results:	Number of workers sampled current period: 5	Range of Results: 0.26 - 0.74	Nu
Occupations sampled:	Deputy (1), Other (1), Power Support Operator (2), Shearer (1)		

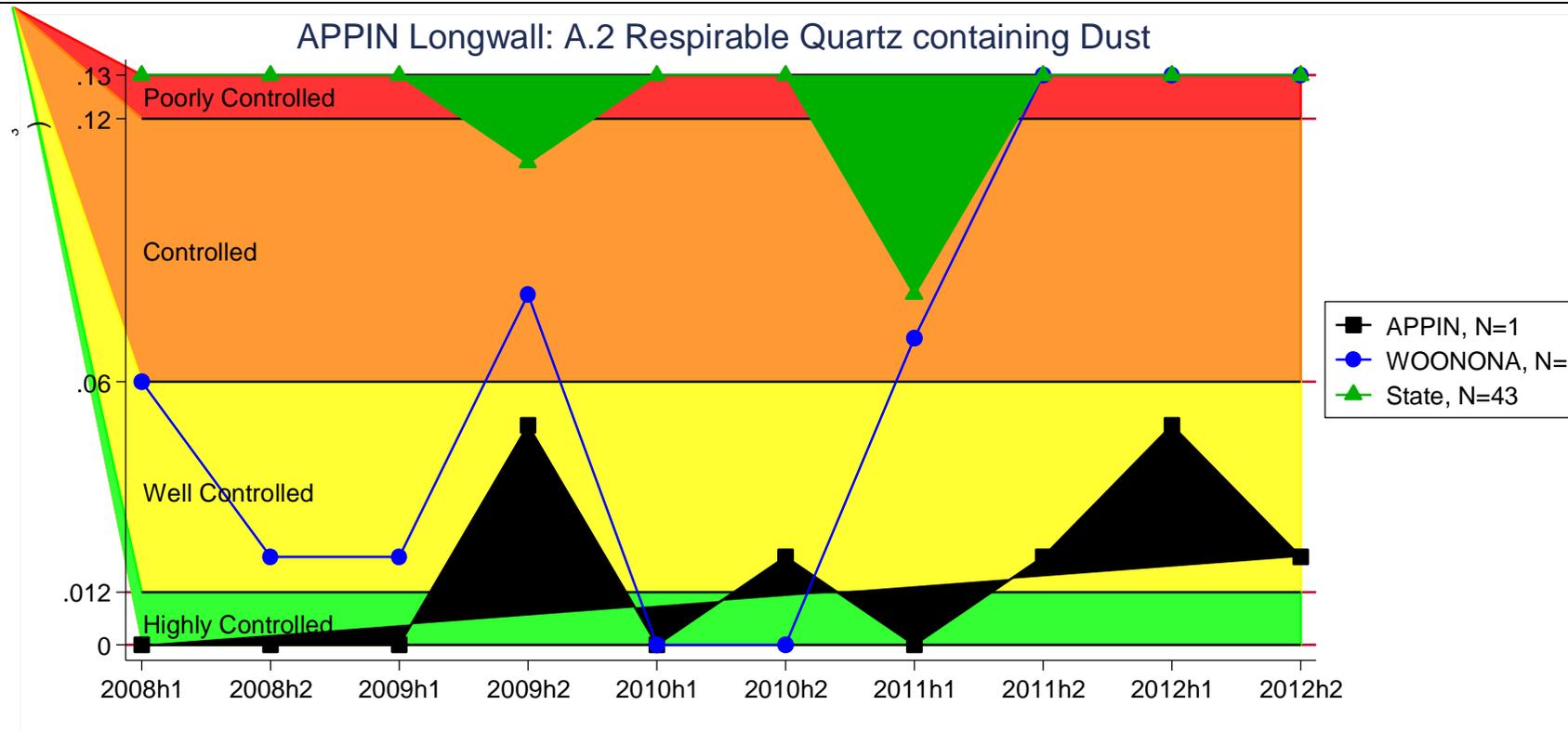


Current Level of control:	Well Controlled
OHyS recommendations	None

A.2 Respirable Quartz containing Dust - (Underground - Longwall)

Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and with quartz exposure can cause silicosis with long-term OEL is 0.12 (TWA) mg/m³.

Summary of results:	Number of workers sampled current period: 1	Range of Results: 0.020 - 0.020	Number of exc
Occupations sampled:	Shearer (1)		

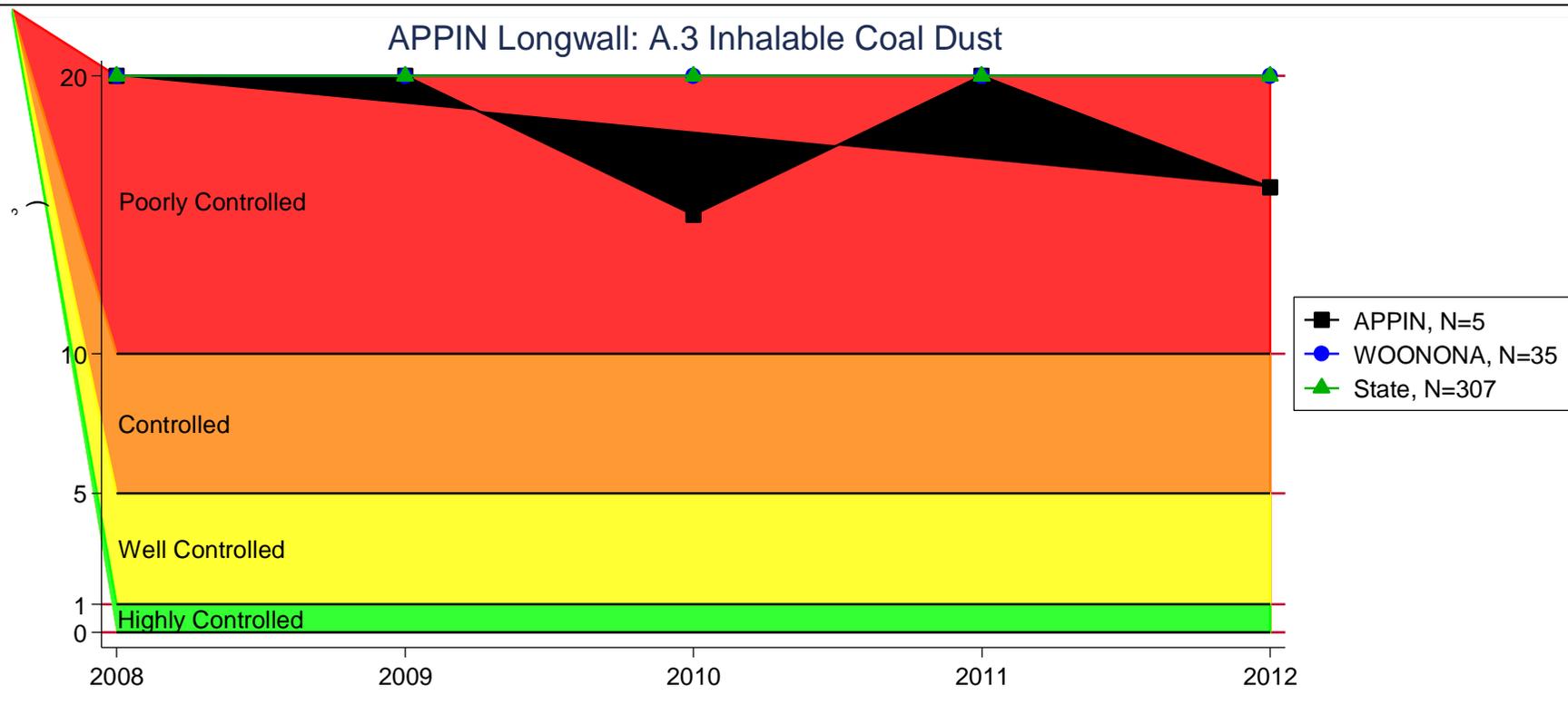


Current Level of control:	Well Controlled
OHyS recommendations:	None

A.3 Inhalable Dust - (Underground - Longwall)

Inhalable dust refers to dust below 100um in diameter that may reach the upper respiratory tract and exacerbate asthma and bronchitis with elevated exposure 10 (TWA) mg/m³.

Summary of results:	Number of workers sampled current period: 5	Range of Results: 6.60 - 16.00	Number of exceedances: 2
Occupations sampled:	Deputy (1), Other (1), Power Support Operator (2), Shearer (1)		

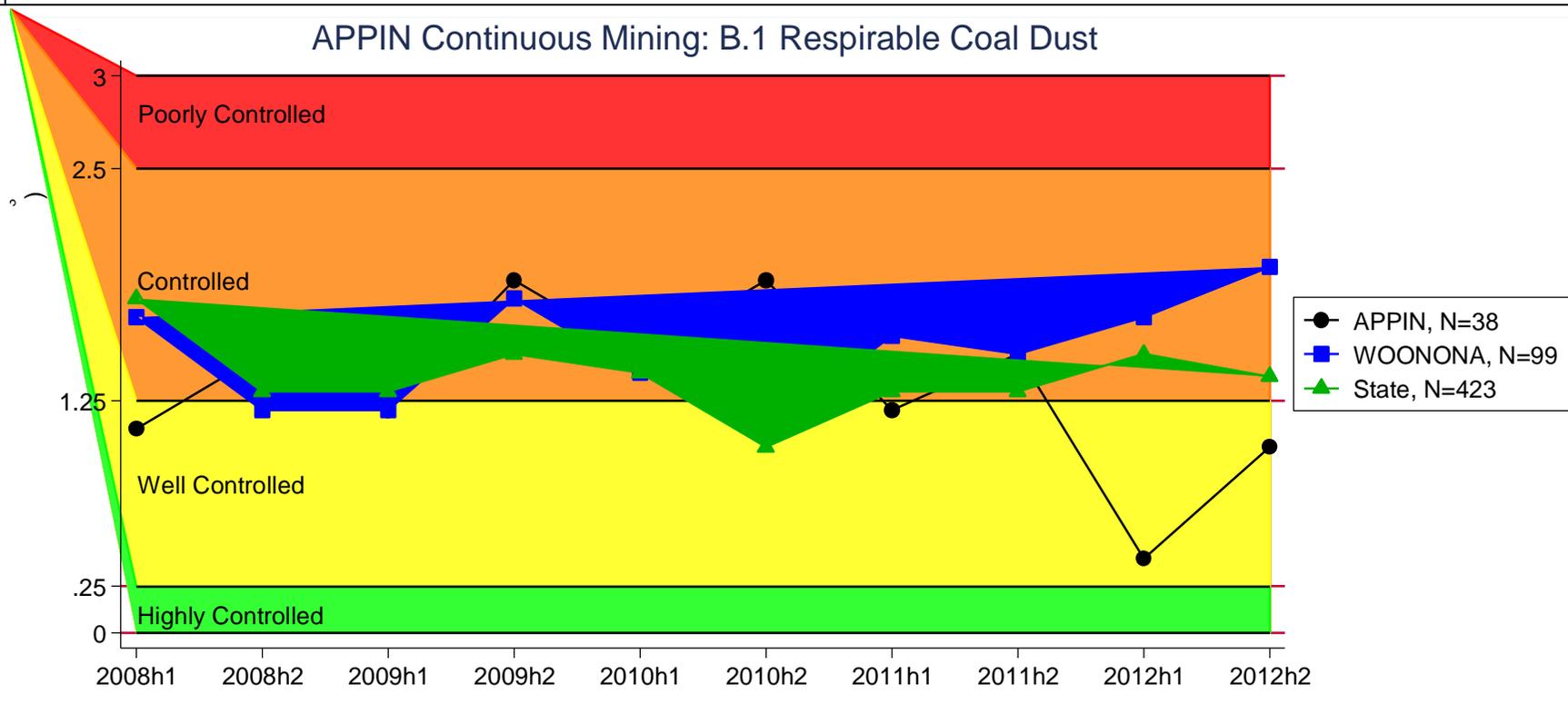


Current Level of control:	Poorly Controlled
OHyS recommendations	Existing control failures require urgent investigation

B.1 Respirable Dust - (Underground – Continuous Mining)

Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and cause pneumoconiosis with long-term repeated over exposure. The maximum recommended exposure limit (MREL) for respirable dust is 2.5 (TWA) mg/m³.

Summary:	Number of workers sampled current period: 39	Range of Results: 0.15 - 1.18	Number of exceedances: 0
Occupations sampled:	Continuous Miner Driver (7), Deputy (9), Other (1), Shuttle Car Driver (7), Sideman Or Cable Handler (15)		

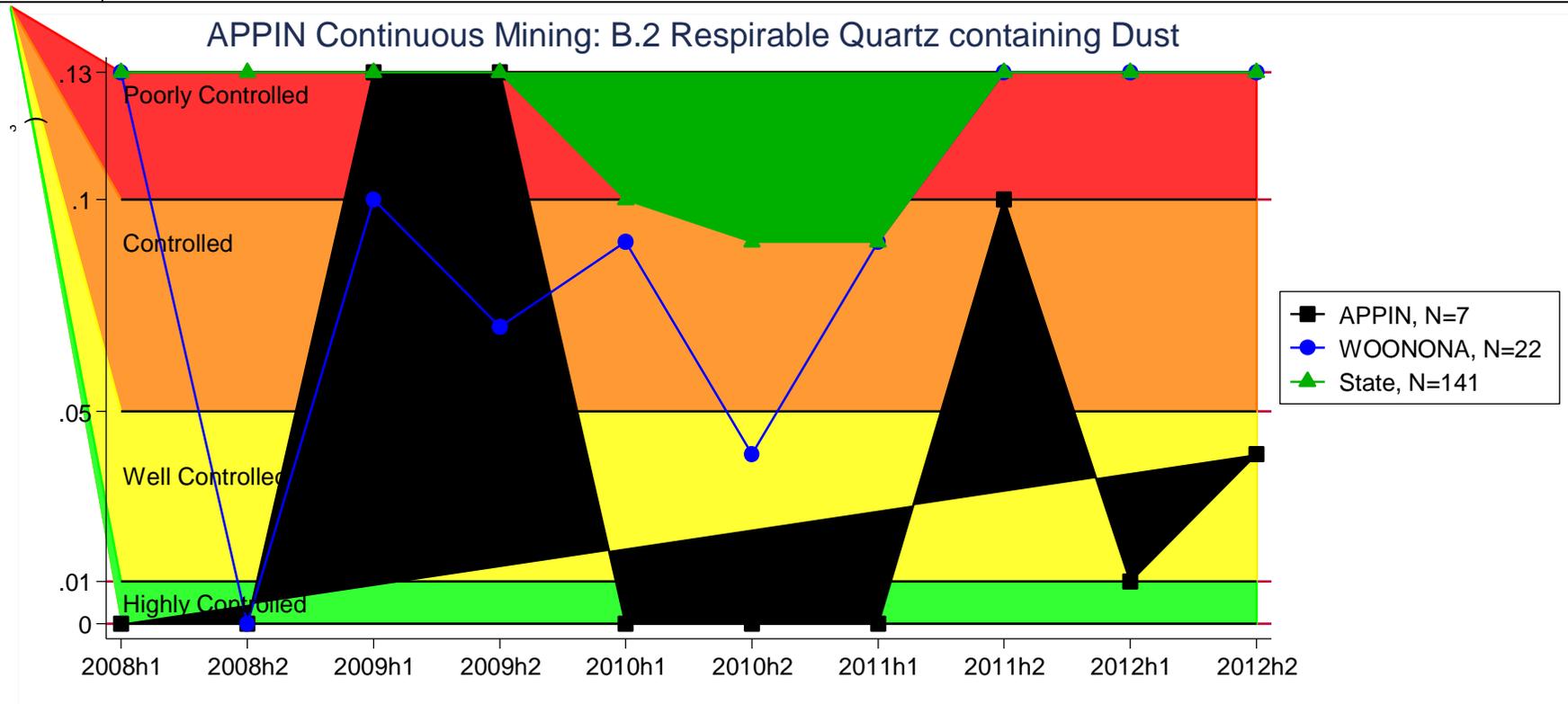


Current Level of control:	Well Controlled
OHyS recommendations	None

B.2 Respirable Quartz-Containing Dust - (Underground – Continuous Mining)

Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and with quartz exposure can cause silicosis with long-term repeated over exposure. The OEL is 0.1 (TWA) mg/m³.

Summary:	Number of workers sampled current period: 7	Range of Results: 0.000 - 0.040	Number of exceedances: 0
Occupations sampled:	Continuous Miner Driver (1), Deputy (1), Shuttle Car Driver (1), Sideman Or Cable Handler (4)		

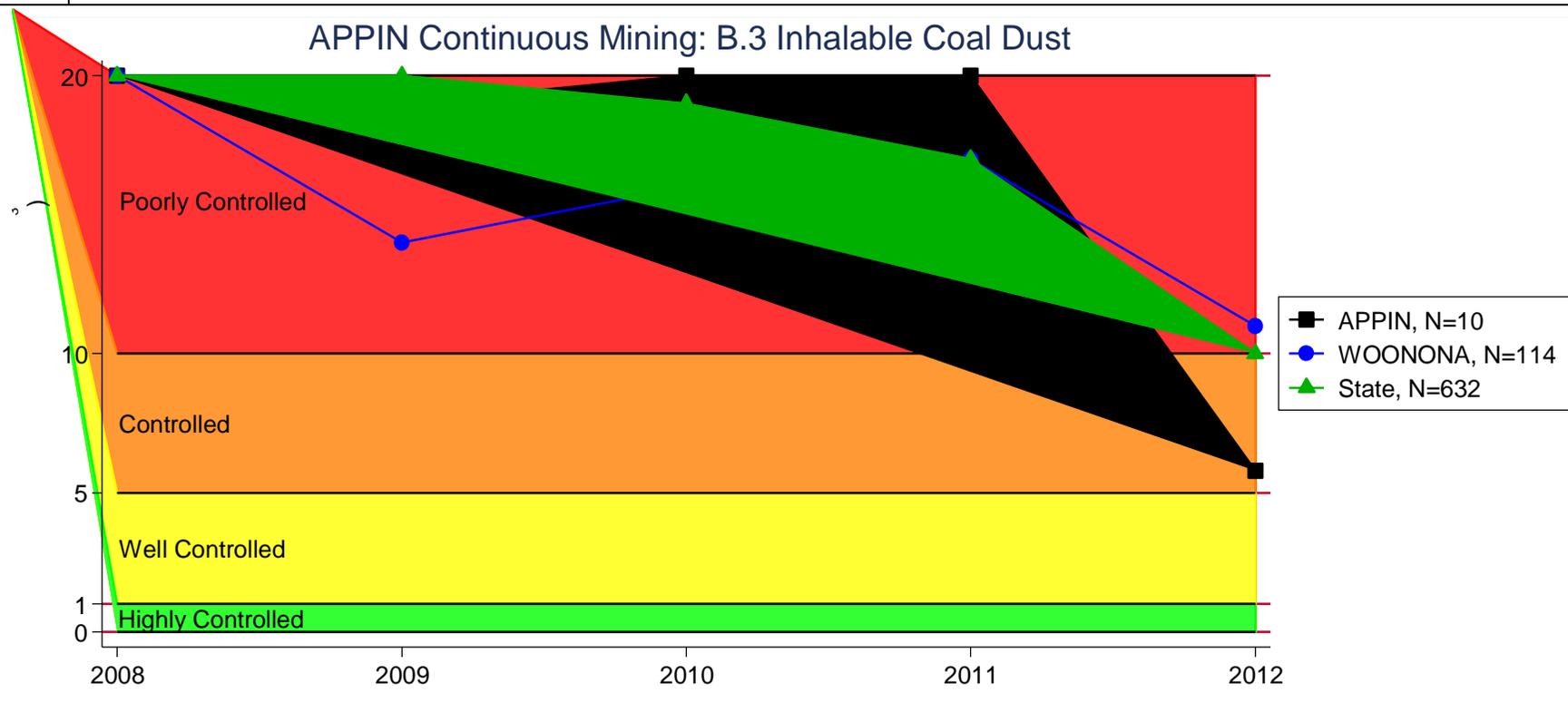


Current Level of control:	Well Controlled
OHyS recommendations	None

B.3 Inspirable Dust - (Underground – Continuous Mining)

Inhalable dust refers to dust below 100um in diameter that may reach the upper respiratory tract and exacerbate asthma and bronchitis with elevated exposure. The OEL for inhalable dust is 10 (TWA) mg/m³.

Summary:	Number of workers sampled current period: 10	Range of Results: 1.30 - 5.80	Number of exceedances: 0
Occupations sampled:	Continuous Miner Driver (1), Deputy (3), Other (3), Shuttle Car Driver (1), Sideman Or Cable Handler (2)		



Current Level of control:	Controlled		
OHyS recommendations	Existing control measure need evaluation		
<p>C.1 Inhalable Dust - (Underground – Where cement products are being applied)</p> <p>Respirable dust refers to dust below 5um in diameter that may reach the alveoli in the lung and cause pneumoconiosis with long-term repeated over exposure. The OEL is 2.5 (TWA) mg/m³.</p>			
Summary:	Number of workers sampled current period: 191	Range of Results:	Number of exceedances:
Occupations sampled:	Chockman, Deputy, Fitter, General, Outbye Man, Shearer, Spare Man		
Current Level of control:	Highly Controlled		
OHyS recommendations	None		

> Insurance > Health > Rescue > Environment

CMTS > OH

D.1 Respirable Dust - (Underground – Other)

Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and cause pneumoconiosis with long-term repeated over exposure. The OEL is 2.5 (TWA) mg/m³.

Summary:	Number of workers sampled: 191	Range of Results:	Number of exceedances:
Occupations sampled:	Chockman, Deputy, Fitter, General, Outbye Man, Shearer, Spare Man		
Current Level of control:	Highly Controlled		
OHyS recommendations	None		

> Insurance > Health > Rescue > Environment

CMTS > OH

D.2 Respirable Quartz-Containing Dust - (Underground – Other)

Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and with quartz exposure can cause silicosis with long-term repeated over exposure. The OEL is 0.1 (TWA) mg/m³.

Summary:	Number of workers sampled: 191	Range of Results:	Number of exceedances:
Occupations sampled:	Chockman, Deputy, Fitter, General, Outbye Man, Shearer, Spare Man		
Current Level of control:	Highly Controlled		
OHyS recommendations	None		

> Insurance > Health > Rescue > Environment

CMTS > OH

D.3 Respirable Dust - (Underground – Other)

Respirable dust refers to dust below 5µm in diameter that may reach the alveoli in the lung and cause pneumoconiosis with long-term repeated over exposure. The OEL is 2.5 (TWA) mg/m³.

Summary:	Number of workers sampled: 191	Range of Results:	Number of exceedances:
Occupations sampled:	Chockman, Deputy, Fitter, General, Outbye Man, Shearer, Spare Man		
Current Level of control:	Highly Controlled		
OHyS recommendations	None		

Attachment 1: Sampling schedule as required by Order 42

Schedule 1 of the order is provided below. It outlines the minimum locations, frequencies and persons for sampling only. When difficult, dusty or unusual circumstances occur, then rigorous sampling arrangements suitable to the circumstances are undertaken.

The table gives minimum locations, frequencies and persons for sampling only. Where difficult, dusty or unusual circumstances occur, then rigorous sampling arrangements suitable to the circumstances will need to be undertaken stop.

<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>	<i>Column 4</i>	<i>Column 5</i>
<i>Location</i>	<i>Frequency of sampling respirable dust</i>	<i>Frequency of sampling respirable Quartz containing dust</i>	<i>Frequency of sampling inhalable dust</i>	<i>Persons to be sample</i>
In each part of the coal operation where longwall mining is fish carried out.	Each producing shift at intervals not exceeding six months	Each producing shift at intervals not exceeding six months	Each producing shift at intervals not exceeding 12 months	Samples to be collected from the breathing zone of at least five persons including, where possible: A shearer operator Two powered support operators A deputy One other person selected by Coal Services Pty. Ltd.

<p>In each part of the coal operation where continuous mining machine operates</p>	<p>Each producing shift at intervals not exceeding 12 months.</p>	<p>Each producing shift at intervals not exceeding 12 months.</p>	<p>At intervals not exceeding 12 months</p>	<p>Samples to be collected from the breathing zone of at least 5 persons including, where possible:</p> <ul style="list-style-type: none"> a continuous miner driver a side man or cable handler a shuttle car driver a deputy a bid to end attendant or other person selected by Coal Services Pty. Ltd.
<p>In any part of an underground coalmine operation where cement products are being applied.</p>			<p>At intervals not exceeding 12 months</p>	<p>Sample is to be collected from the breathing zone of at least two persons including, where possible:</p> <ul style="list-style-type: none"> Person loading cement into a mixer persons spraying or applying cement products
<p>In any place in or about an underground coal operation other than those referred to A, B or C.</p>	<p>At intervals not exceeding 12 months</p>	<p>At intervals not exceeding 12 months</p>	<p>At intervals not exceeding 12 months</p>	<p>Samples to be collected from the breathing zone of at least one person</p>

Development of a method of statistical analysis and reporting framework for the New South Wales Coal Industry

<p>In any place or about an open cut coal operation where dust may be present</p>	<p>At intervals not exceeding 12 months</p>	<p>At intervals not exceeding 12 months</p>	<p>At into walls not exceeding 12 months</p>	<p>Samples to be collected from the breathing zone of at least five persons including, where possible: drill operators, shotfirers and stemmers Mobile equipment operator</p>
<p>In any place in or about a coal preparation plant located within a coal operation we are dust may be present</p>	<p>At intervals not exceeding 12 months</p>	<p>At intervals not exceeding 12 months</p>	<p>At intervals not exceeding 12 months</p>	<p>Sample is to be collected from the breathing zone of at least five persons where available</p>

Contacts for Additional Information

If any further clarification of results or more information is required, please contact the Coal Industry Act Inspector that services your site. Please find below the direct contact numbers:

<i>Singleton (Hunter Valley)</i>		<i>Argenton (Newcastle)</i>	
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Mr. Brad Lambkin	0419 210 721	Mr. Glenn Goodwin	0438 641 569
Mr. Shaun Greer	0417 267 300	Mr. John Jennings	0418 271 858
Mr. Michael Land	0458 215 131	Mr. Michael Land	0458 215 131
<i>Lithgow/Western District</i>		<i>Wollongong (Southern)</i>	
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