



2017 NSW Coal Airborne Dust Results

The 2017 Airborne Dust Results bulletin outlines results and observations from 2017 statutory dust monitoring undertaken by Coal Services. The Standing Dust Committee recommends that mine management review reported data and findings and consider if improvements are required in their airborne dust management system.

2017 General Findings

- 2526 respirable dust exposure results collected
- 966 respirable crystalline silica (quartz) exposure results collected
- 1375 inhalable dust exposure results collected
- Decrease in respirable crystalline silica (quartz) and Inhalable dust exposure limit exceedances at underground and surface operations
- Respirable dust exceedances remained at 0% for surface operations but increased from 0.4% in 2016 to 0.6% at underground operations

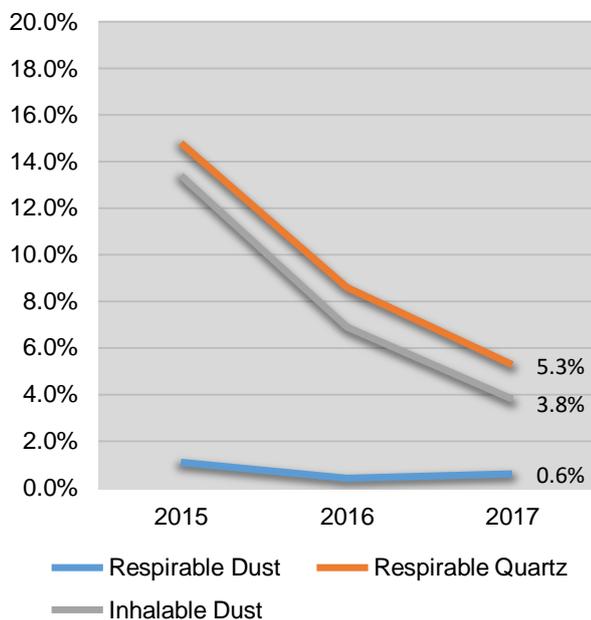


Figure 1. NSW Underground Coal airborne dust exposure limit exceedance rates 2015-2017

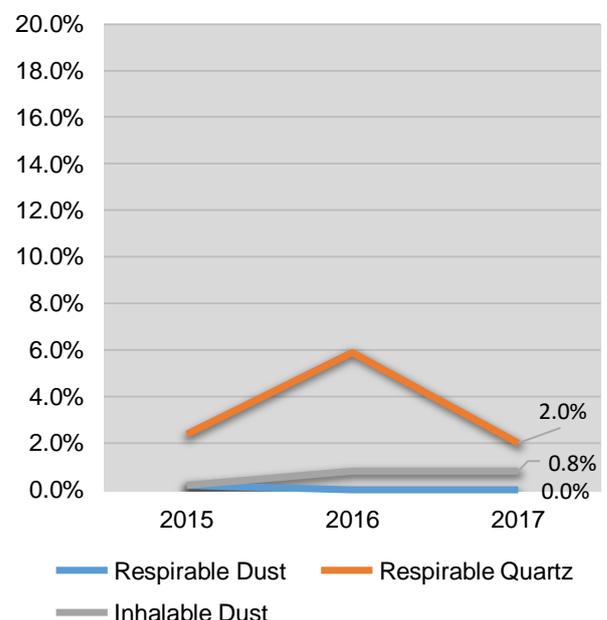
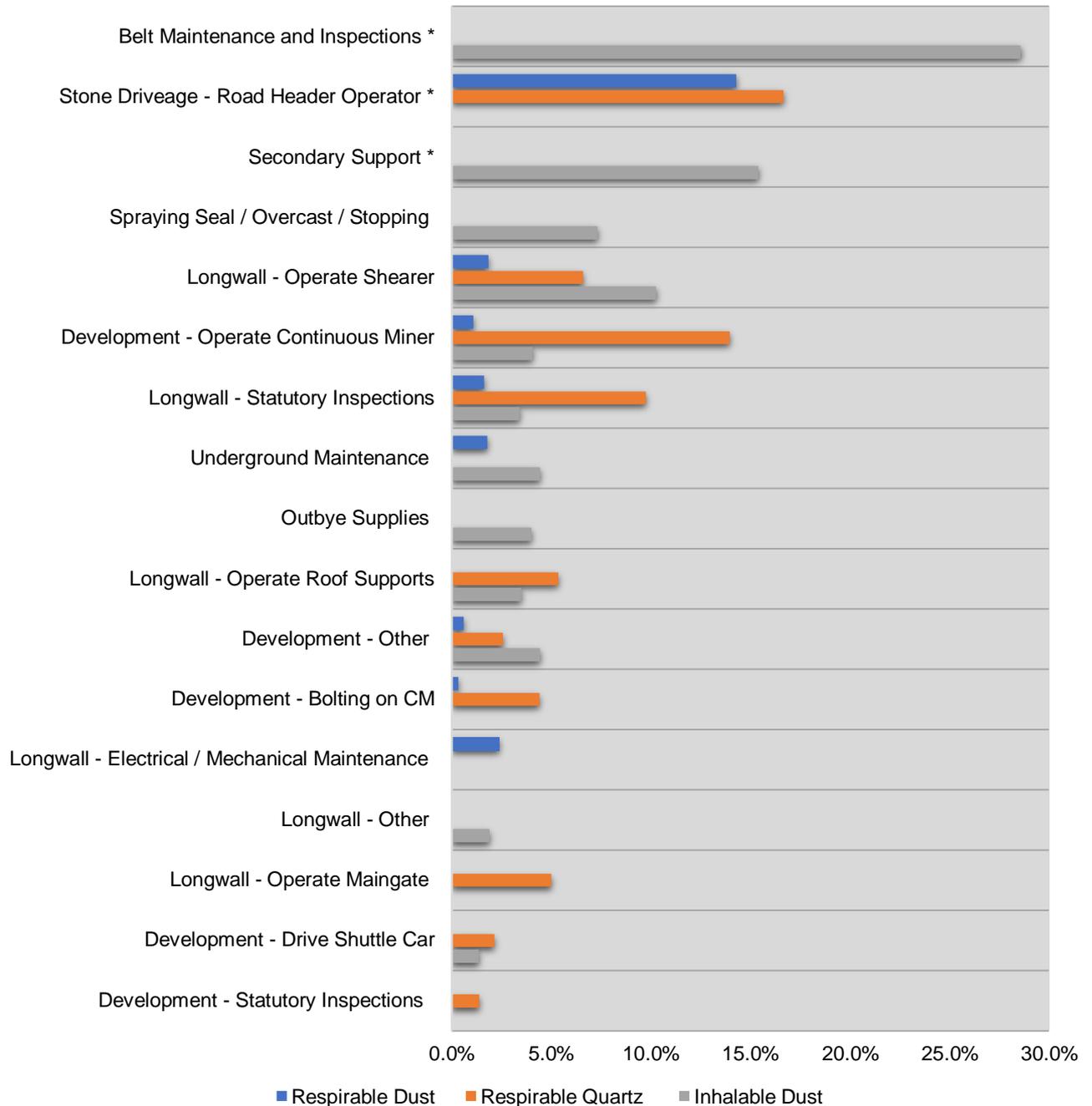


Figure 2. NSW Surface Coal airborne dust exposure limit exceedance rates 2015-2017



NSW 2017 Underground Coal Results Summary



*Limited data collected for these SEG's (<25 results)

Figure 3. Underground Coal Similar Exposure Group (SEG) exposure limit exceedance rates 2017



Underground Similar Exposure Group (SEG)	Respirable Dust (mg/m ³)	Respirable Quartz (mg/m ³)	Inhalable Dust (mg/m ³)	Respirator use when result >50% OEL
Belt Maintenance and Inspections	0.43	0.01	6.0	50.0%
Development - Bolting on CM	0.50	0.03	4.2	93.3%
Development - Drive Shuttle Car	0.46	0.03	3.4	70.4%
Development - Elec / Mech Maintenance	0.43	0.03	3.6	83.3%
Development - Operate Continuous Miner	0.59	0.06	4.3	79.1%
Development - Other	0.53	0.04	3.7	84.0%
Development - Statutory Inspections	0.49	0.02	3.6	76.0%
Gas Drainage	0.26	0.01	3.9	100.0%
Longwall - Elec / Mech Maintenance	0.63	0.04	3.6	92.3%
Longwall - Operate Maingate	0.55	0.04	3.2	84.6%
Longwall - Operate Roof Supports	0.73	0.05	5.2	100.0%
Longwall - Operate Shearer	0.88	0.04	6.7	100.0%
Longwall - Other	0.55	0.04	3.4	50.0%
Longwall - Statutory Inspections	0.68	0.05	4.2	95.5%
Outbye construction/infrastructure	0.33	0.02	3.5	100.0%
Outbye Supplies	0.29	0.01	3.0	100.0%
Secondary Support	0.38	0.03	5.4	50.0%
Shift co-ordinator / management	0.32			*
Statutory Inspections	0.37	0.02	2.9	50.0%
Stone Driveage - Other	0.40	0.04	1.6	100.0%
Stone Driveage - Road Header Operator	1.33	0.06	2.1	100.0%
Underground Maintenance	0.44	0.02	3.5	88.9%
Underground Other			6.8	100.0%
VCD Installers - Other			4.9	100.0%
VCD Installers - Spraying Seal, Overcast, Stopping	0.32	0.01	5.7	83.3%

	Average exposure level ≤ 10% occupational exposure limit
	Average exposure level 10 - 50% occupational exposure limit
	Average exposure level 50 - 100% occupational exposure limit
	Average exposure level > 100% occupational exposure limit

Figure 4. NSW Underground Similar Exposure Group (SEG) average exposure level 2017



What factors contribute to underground mine airborne dust exposure limit exceedances?

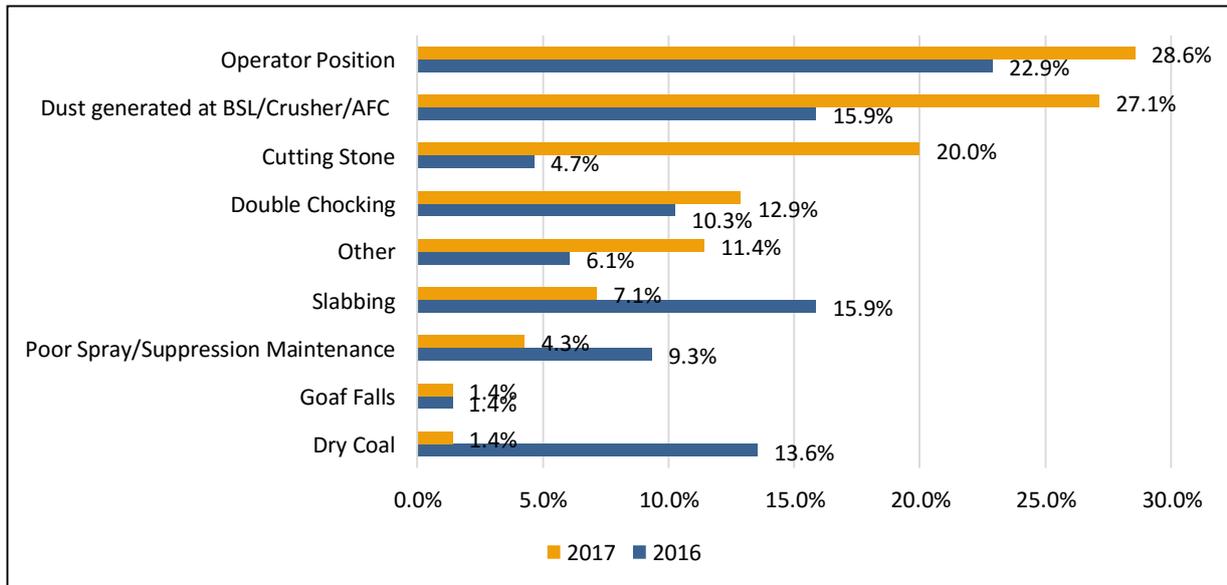


Figure 5. Contributing factors identified in longwall airborne dust exposure limit exceedances 2017

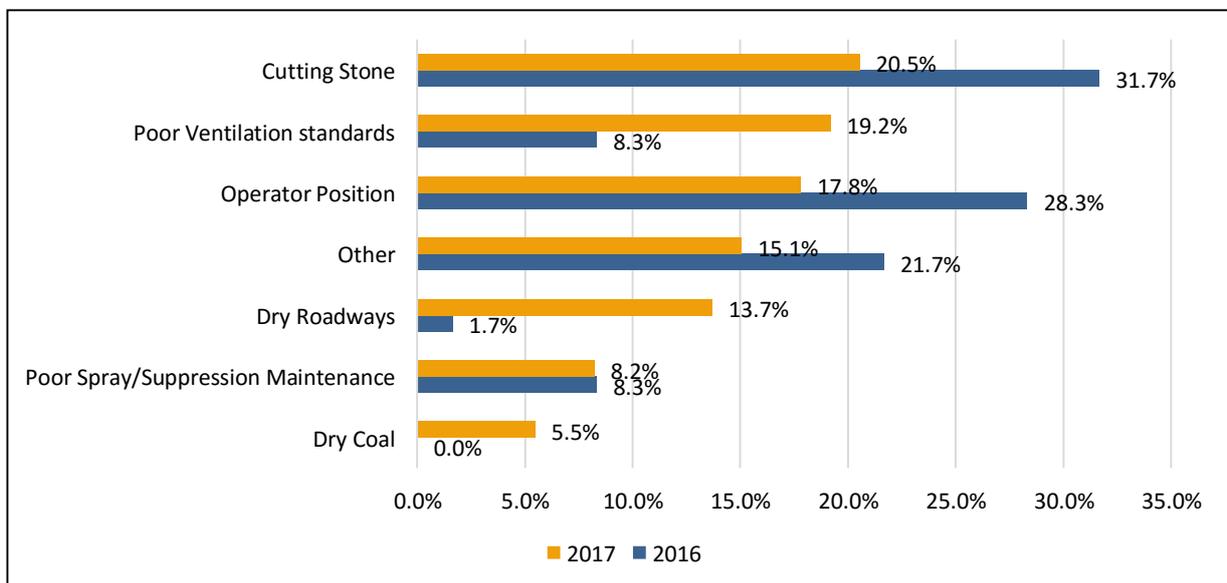


Figure 6. Contributing factors identified in non-longwall airborne dust exposure limit exceedances 2017

Figures 5 and 6 have been generated to display the factors which have been identified as contributing to individual exceedances. For example, of the 40 individual airborne dust exceedances in longwall areas in 2017, 28.6% of these exceedances had poor operator positioning identified as a contributing factor. An individual exceedance may have multiple contributing factors assigned to it.

2017 NSW Underground Coal Findings

	<p>Inhalable Dust and Quartz exposure levels are lower than those collected in 2016. The biggest improvements have been seen in Longwall exposure results.</p>
	<p>Respirable Dust exposure levels increased in 2017 compared to 2016. The number of respirable dust samples exceeding the occupational exposure limit increased from 0.4% to 0.6% of all results.</p>
	<p>Improvements were seen in the use of operator positioning on continuous miners and spray maintenance on Longwalls to control dust exposure levels.</p>
	<p>Operator position in Longwall areas and poor ventilation standards in continuous miner panels (particularly when conducting breakaways) continue to be identified as requiring improvement.</p>
	<p>Good use of personal respirators by workers completing the following tasks - longwall face operators, road header operators, outbye supplies operators, gas drainage operators and ventilation crew operators.</p>
	<p>Improvements are required in the use of personal respirators by workers completing the following tasks – continuous miner operators, shuttle car operators, development and outbye deputies and secondary support workers.</p>
	<p>The following tasks remain the most likely to result in elevated dust exposure:</p> <ul style="list-style-type: none"> • Road header operators • Secondary Support and Spraying crews • Belt maintenance and Inspection workers • Longwall shearer operator • Continuous miner operator • Longwall Deputy



2017 NSW Surface Coal Results Summary

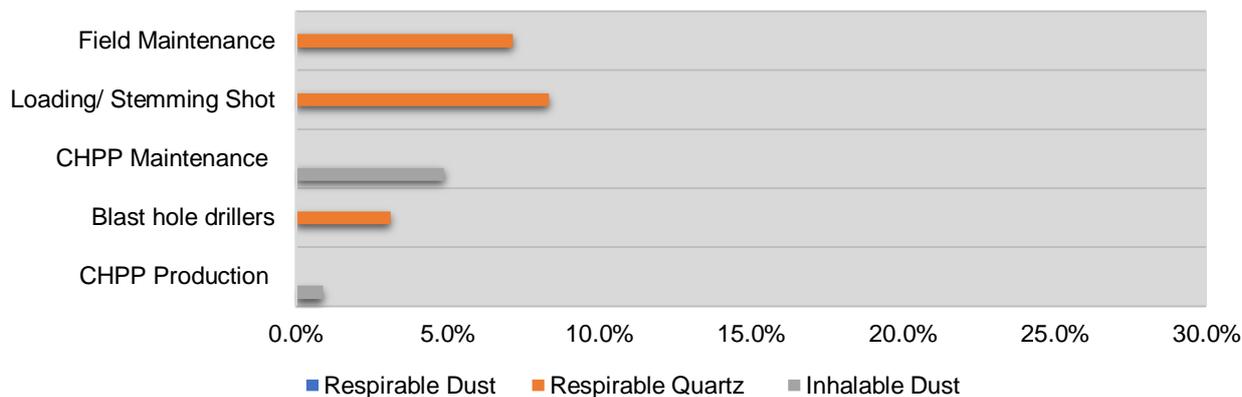


Figure 7. Surface Coal Similar Exposure Group (SEG) exposure limit exceedance rates 2017

Surface Similar Exposure Group (SEG)	Respirable Dust (mg/m ³)	Respirable Quartz (mg/m ³)	Inhalable Dust (mg/m ³)	Respirator use when result >50% OEL
Administration			0.2	*
Belt Splicers			1.5	*
Blast hole drillers	0.14	0.02	1.3	0%
Boilermaker	0.83	0.01	2.6	100%
CHPP Dozer	0.18	0.01	1.4	*
CHPP Lab	0.21	0.02	1.3	*
CHPP Maintenance	0.24	0.01	3.2	80%
CHPP Production	0.14	0.01	1.5	50%
Coal Removal	0.09	0.01	0.7	*
Control Room	0.16	0.01	1.4	*
Field Maintenance	0.20	0.02	0.7	0%
Loading/ Stemming Shot	0.19	0.04	2.2	11.1%
Open Cut Inspections	0.13	0.02	0.7	*
Pre-strip and Overburden Removal	0.11	0.01	0.9	0%
Road maintenance	0.09	0.01	0.5	*
Service crew	0.04	0.01	0.8	*
Stemming Truck / Other	0.07	0.01	1.6	*
Workshop	0.13	0.01	1.1	*

	Average exposure level ≤ 10% occupational exposure limit
	Average exposure level 10 - 50% occupational exposure limit
	Average exposure level 50 - 100% occupational exposure limit
	Average exposure level > 100% occupational exposure limit

Figure 8. Surface Coal Similar Exposure Group (SEG) average exposure level 2017

2017 NSW Surface Coal Findings



Respirable Quartz exposure levels are lower than those collected in 2016. The biggest improvements have been seen in blast hole drillers and open cut inspection personnel.



2017 saw a large number of surface operations embark on a program of airborne dust worker education to raise awareness of the hazard of airborne dust and the importance of high standards in controlling dust,



Improvements are required in the use of personal respirators by workers across all areas of surface operations.



Surface operations are generally seeking additional monitoring to better understand their exposure profiles and identify any areas/tasks of increased risk.



The following tasks remain the most likely to result in elevated dust exposure:

- Blast crew
- Field maintenance crew
- Tasks requiring operators to work outside of cabin
- CHPP maintenance