Singleton Shire Healthy Environment Group
"Singleton Air Pollution Health Concerns"

A community-based group looking to address Environmental issues affecting Singleton Shire residents

[redacted]

Author: Dr Neville Hodkinson PhD

We seek identification as to what is making our Children and Community Sick so they can be mitigated by OH&S Compliance Orders.

SSHEG Focus on Health

SSHEG is Not Anti Mining or Anti Power Stations

18 May 2019

Independent Planning Commission NSW
Level 3, 201 Elizabeth St.
Sydney NSW 2000
Email: ipcn@ipcn.nsw.gov.au

"Priority Community Hunter Valley Air Pollution Action needed"

SSHEG and Health Concerned Residents as "Near Neighbours to Open Cut Mines" are asking the Question: -

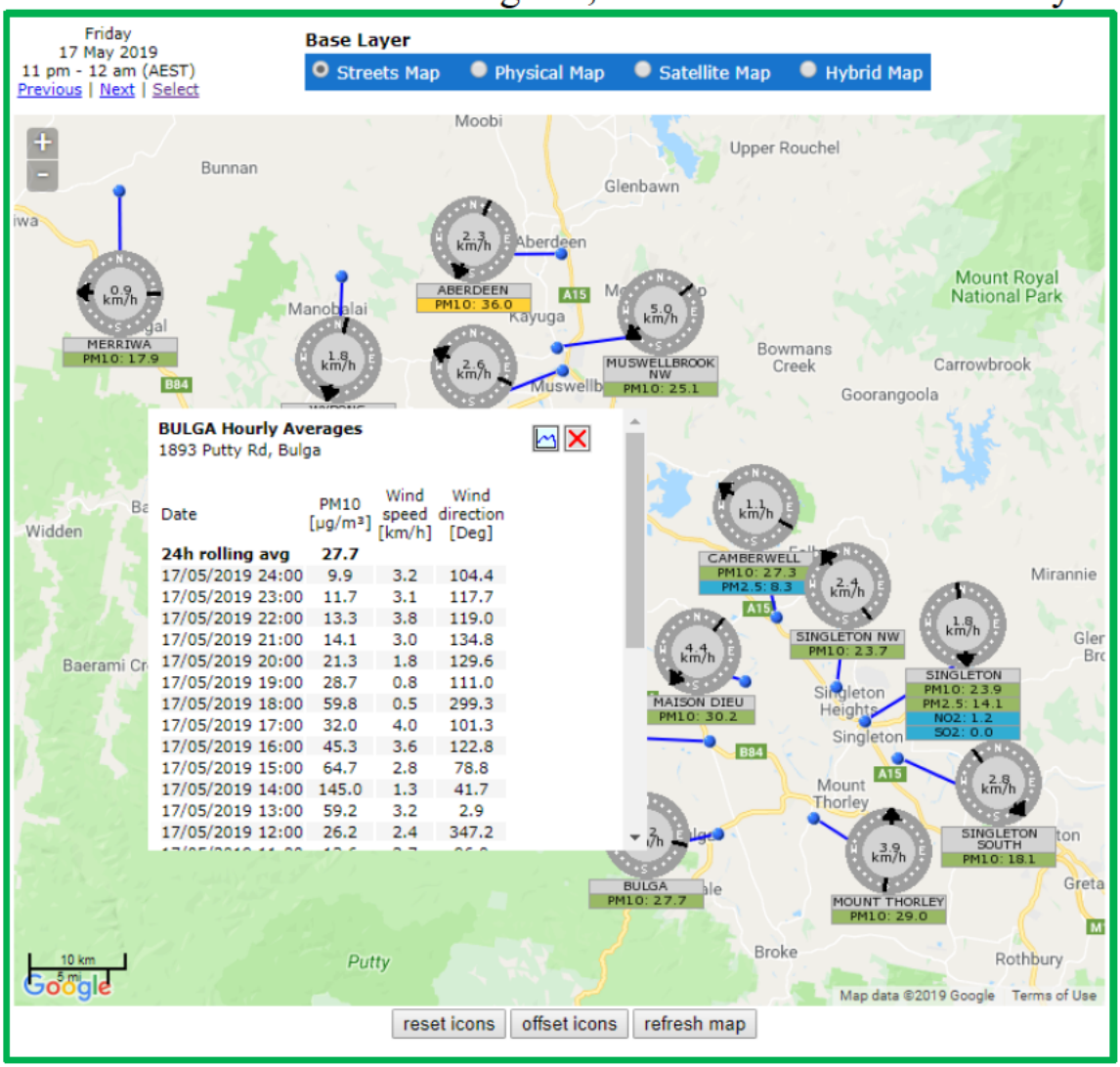
"***Why after 10 years of Community detailing the observed Diseases impact of sudden exposure to Mine Air Pollution; three years NSW Health, CSIRO & ANSTO Research 2010 -2013; WHO Air Pollution & Disease Declarations Oct 2013; eight years Upper Hunter Mining Dialogue, Mines, EPA & OEH initiatives 2011- 2017; after all this combined effort; why are Singleton GP's again reporting worsening Pollution related Community Disease in 2019?***

The answer seems to lie in the **Mine focus to Minimise Dust** as detailed in **MD Video**, while the **W**orld **H**ealth **O**rganisation Disease Impacts of 2013 were reporting on 40 years of Medical Research identifying Particulate Matter PM10, PM2.5 and PM1; **target to Minimise PM2.5 Fine and PM10-2.5 Coarse.** https://youtu.be/q4TojwxKVRQ

SSHEG concludes that Singleton Town and Near Neighbours to Rixs Creek Mine are being exposed to excessive levels of Valley Air Pollution Drifting Patterns and Blast Plumes that often return to Ground.

SSHEG considers that IPC should in the case of Rixs Creek Mine limit Operations so as to Minimise the Cumulative PM10 below the 1 Hr 50 ug/m3 at each and every identified locality by continuous monitoring as they exhibit the key Air Drifting Patterns; such as Singleton Heights, Gowie, Camberwell, Mc Dougalls Hill, Country Acres Caravan Park; and especially Komodes Rural on Rosella St the subject of numerous Rixs Creek Mine Blast Fume and Sickness reports to SSHEG.

Further, SSHEG 10year review concludes that Mines now operate to target not to exceed the **Daily 24 Hr Average PM10 at midnight of 50ug/m^3**(Compliance). 10 years ago PM10 monitoring was at its infancy with the focus on Mine Deposition Dust, but now in 2019 rather than Minimising PM10 levels, Mines are "observing" PM10 monitors at resident locations to exceed 50ug/m3; and for several hours in daytime.



How does the WHO/IARC declaration that the Rate of Rise of PM Fine and Coarse above background PM levels impacts the Human Disease susceptibility of especially certain groups, children, elderly, COPD, Asthma, Respiratory, etc ?

The Rural areas of the Hunter Valley (those outside the major towns of Muswellbrook and Singleton) exhibit their PM10 Backgrounds that hovers around 5 ug/m3, and clearly rise as Mine Air Pollution Drifting Pattern impact these otherwise rural localities.

WHO Air Exposes Types relate to Rural Children going to Singleton Town Schools where the PM Human Disease Response Rises as the **1Hr Average PM10** levels rise from say their Rural Background of 5-10 ug/m^3 to higher Singleton Town PM10 level often to 55 – 75+ug/m^3 over several hours throughout the Day. These daily exposures with these Rate of Rise PM10 Impacts are known to contribute to Diseases of the type being reported by Singleton GP Dr Au.

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Joanne McCarthy Local News

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Also, with Mines **Minimising Dust** rather than **Minimising PM10 and PM2.5 at Resident locations**, it is not surprising that our Singleton GP Doctor Au is repeating his call in 2019 that fell on deaf ears in 2008.

Perhaps then, it's also our Rural localities Residents, many as "Near Neighbours to Mining" that are exposed to the Mine Air Pollution Drifting Patterns of sudden and sustained Rises in Particulate Matter on multiple days and nights that explains the Disease Survey reports made to SSHEG in 2008.

Meanwhile, in recent years since 2016 Mines seem content to continue Operations as long as the Upper Hunter Air Quality Monitoring Network (UHAQMN) of PM10 Monitors are not, or likely in the next hour to report, a Community Mobile Phone SMS Air Quality Alert, *eg "Air Quality Alert, Maison Dieu levels exceeded national air quality standards day date & time*".

However, the provisions of the "Air Pollution Act" calls for

"all reasonable measure and feasible measures are taken to minimise human exposure to PM",

and this is alongside the other Community Health issued detailed by NSW Health- Hunter New England (extract below) of Attachment 1 that should relate now to all Mine in the Hunter Valley and beyond.

Air Quality

There is no evidence of a threshold below which exposure to particulate matter (PM) is not associated with health effects. Therefore, it is important that all reasonable and feasible measures are taken to minimise human exposure to PM, even where assessment criteria are met.

On 15 December 2015, the National Environment Protection Council (NEPC) agreed to vary the National Environment Protection (Ambient Air Quality) Measure (NEPM). The amending instrument took effect on 4 February 2016. The new standards are as follows:

Pollutant	Averaging Period	Maximum concentration standard	Maximum allowable exceedances
Particles as PM_{10}	1 day	50 µg/m^3	None
	1 year	25 µg/m^3	None
Particles as $PM_{2.5}$	1 day	25 µg/m^3	None
	1 year	8 µg/m^3	None

Reference: https://www.legislation.gov.au/Details/F2016C00215

The EIS explains that, at the time of preparation of the report, the Environment Protection Authority (EPA) had not yet prescribed changes to the air quality criteria for NSW following the amendment to the NEPM. However, it would be expected that the EPA will introduce the amended criteria within the foreseeable future, and the EIS should have taken this into account.

What the Community of Singleton Shire is asking of IPC and NSW Planning is that any Mine approvals be required at all times for Resident's PM10 not to exceed the NEPM 50ug/m3 limit, and that Mine further operate well below this upper limit to "*Minimise the PM10 and PM2.5 Rate of Rise frequency*" at Continuous Monitoring localities where Residents are being exposed to Mine Air Pollution Drifting Patterns.

SSHEG considers that Planning, IPC and EPA Approvals conditions need to require Mines to continuously trace their Air Pollution Drifting Patterns from their source, and understand the Air Pollution Drifting Patterns both entering and exiting their Mine leases, and especially cease operations where any Resident Localities impacted by these changing Air Pollution Drifting Patterns are exceeding NEPM guidelines.

Therefore, both PM10 and PM2.5 Monitoring of known Mine Blast Fume & Odour and Air Pollution locations now becomes mandatory for Community Disease Protection.

Five years on from the WHO/IARC 2013 declaration on "*Particulate Matter PM2.5 and Disease*" many overseas Countries lead the change to PM2.5 monitoring throughout the Community at Risk.

SSHEG Community Healthy Living focuses upon Mine Pollution Disease Impacts on Residents - breath by breath; insisting that mines Mitigate Pollution by "*Minimising to World Health Organisation ongoing identified Guidelines*" over each 15 Minute period, of Cumulative Locality readings for PM10 and PM10-2.5 & PM2.5: Health Studies are researching these issues today.

That is the Healthy Air we Breath criteria.

It is no wonder that NSW Health would not water down its objections to the guidelines to Mine Approvals, rightly reminding the Authorities, as is also the SSHEG opinion, that lower Mine Pollution well below the "Industry Status Quo" are now overdue.

That is "*Minimisation of Mine Pollution At all times*".

It's Mine Dust versus Resident's Particulate Matter Disease Impacts!

Five years on from October 2013, when the World Health Organisation, International Agency for Research on Cancer, and Lancet Declarations of the Disease Impacts from Exposure to Particulate Matter in the Air we Breath, ongoing and targeted Medical Research are further detailing the various Disease pathways and mechanisms that are now evident from short term exposure to Particulate Matter in the Air.

This compelling Human Disease associations of Air Pollution "with no known Disease Threshold" remains the reason that the WHO, NSW Health and SSHEG in Submissions are as one voice calling for "Minimisation of Mine Pollution".

We highlight here for further consideration our previous SSHEG Submissions - Attachments 1 to 5, and we also provide further detailing of Mine Blasting Stemming in Attachment 5 to substantiate our repeated calls for Industry to recognise "Elimination of Mine Blasting into the Atmosphere by better Stemming".

What we see as "ORICA Mine Blasting of Dust Plumes" is not Best Practice Blasting!

Attachment 5 details the technicalities involved in "Optimum Stemming" as follows:- " Stemming Ejection… Insufficient, inconsistent or ineffective stemming allows the blast energy tp prematurely vent at the collar,…"

Thanking you in anticipation of your acknowledgement.

Dr Neville Hodkinson PhD

Singleton Shire Healthy Environment Group

Attachment 1 NSW Health – Hunter New England Local Health District- Wambo Open Cut Mine 22 Sept 2016

Attachment 2 SSHEG "Response to IPC Rixs Creek Report" Aug 2018

Attachment 3 SSHEG Rixs Creek Mine Continuation Dec 2015

Attachment 4 SSHEG Rixs Creek South Mod 10 – March 2019

Attachment 5 ORESOME Better & Safer Blasting, p 1-13 By G. Tobin Sept 2013

A REVIEW OF 20 YEARS' Air Pollution Control in Beijing

Sophisticated air quality monitoring system

Beijing started to build the air quality monitoring (AQM) system in the 1980s. By 2013, 35 ambient AQM stations which can monitor 6 major pollutants such as $PM_{2.5}$ and O_3, had been established across Beijing. In 2016, combining advanced technologies like high resolution satellite remote sensing and laser radar, a new generation of integrated air quality monitoring network was established. For example, Figure3 shows a high-density $PM_{2.5}$ monitoring network in Beijing, which deployed over 1000 $PM_{2.5}$ sensors throughout the whole city and helped to accurately identify high-emission areas and periods.

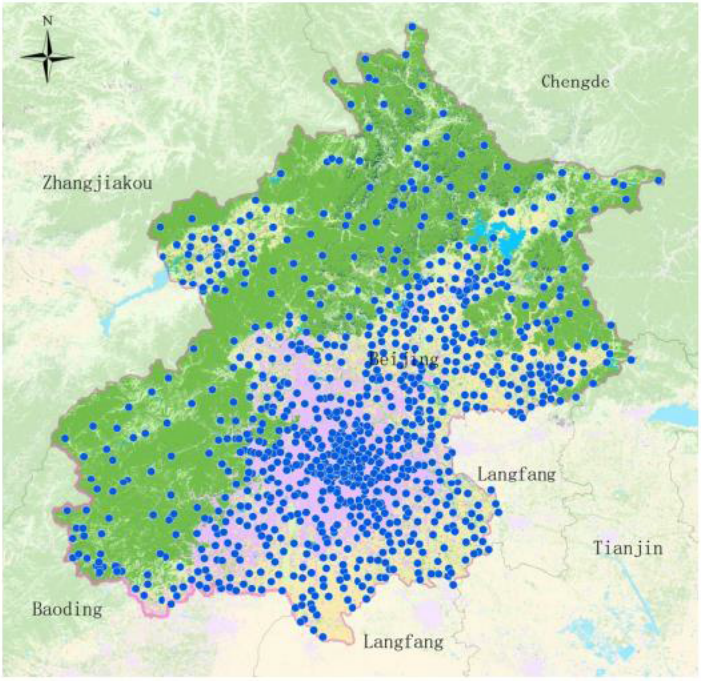

Figure3 Beijing's high-density sensor-based $PM_{2.5}$ monitoring network

Source: Beijing Municipal Environmental Monitoring Center

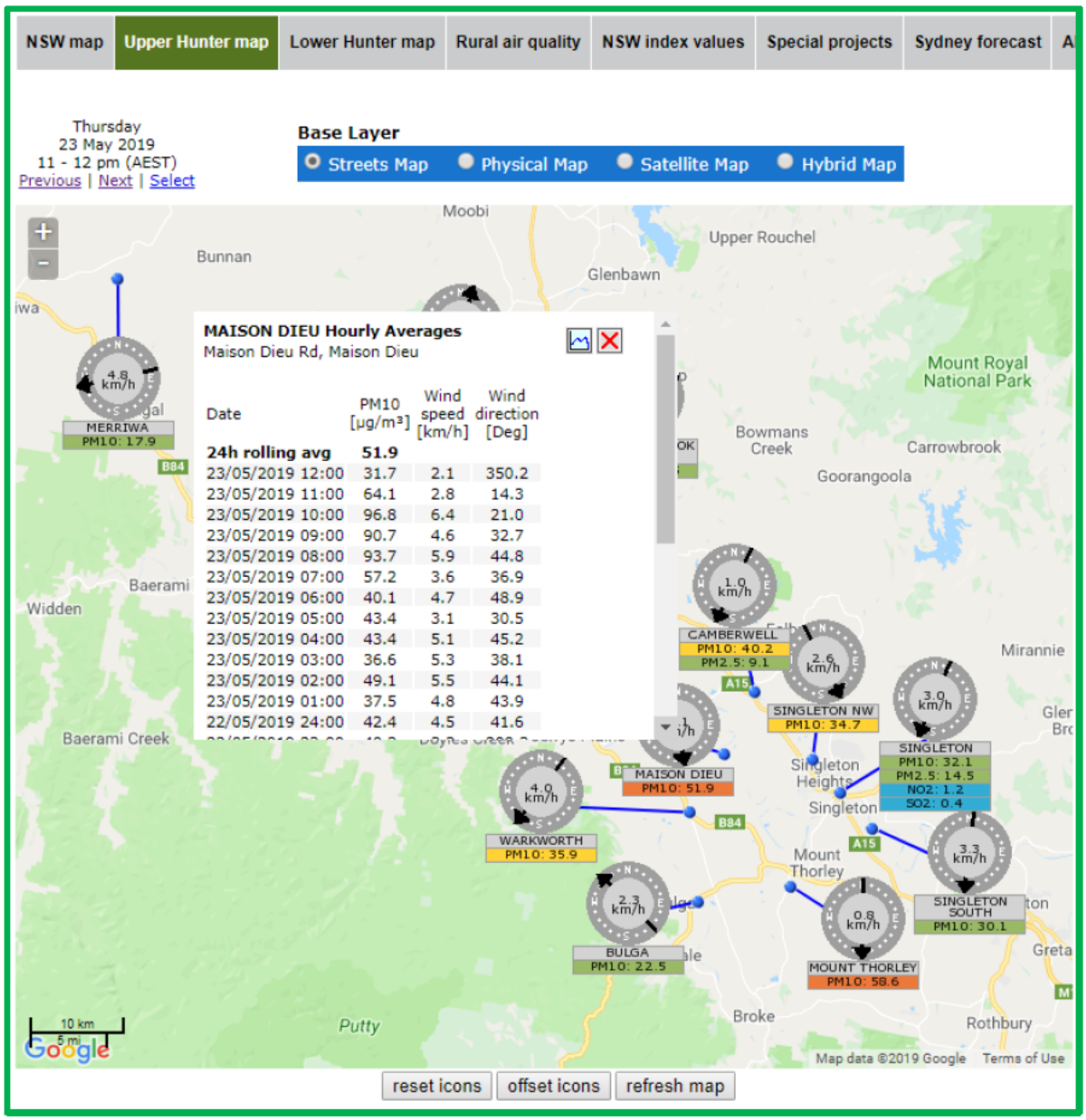
NSW map
Upper Hunter map
Lower Hunter map
Rural air quality
NSW index values
Special projects
Sydney forecast
Thursday
23 May 2019
11 - 12 pm (AEST)
Previous | Next | Select
Base Layer
Streets Map
Physical Map
Satellite Map
Hybrid Map
MAISON DIEU Hourly Averages
Maison Dieu Rd, Maison Dieu
Date | PM10 [µg/m³] | Wind speed [km/h] | Wind direction [Deg]
24h rolling avg 51.9
23/05/2019 12:00 31.7 2.1 350.2
23/05/2019 11:00 64.1 2.8 14.3
23/05/2019 10:00 96.8 6.4 21.0
23/05/2019 09:00 90.7 4.6 32.7
23/05/2019 08:00 93.7 5.9 44.8
23/05/2019 07:00 57.2 3.6 36.9
23/05/2019 06:00 40.1 4.7 48.9
23/05/2019 05:00 43.4 3.1 30.5
23/05/2019 04:00 43.4 5.1 45.2
23/05/2019 03:00 36.6 5.3 38.1
23/05/2019 02:00 49.1 5.5 44.1
23/05/2019 01:00 37.5 4.8 43.9
22/05/2019 24:00 42.4 4.5 41.6
MERRIWA PM10: 17.9
CAMBERWELL PM10: 40.2 PM2.5: 9.1
SINGLETON NW PM10: 34.7
SINGLETON PM10: 32.1 PM2.5: 14.5 NO2: 1.2 SO2: 0.4
MAISON DIEU PM10: 51.9
WARKWORTH PM10: 35.9
BULGA PM10: 22.5
MOUNT THORLEY PM10: 58.6
SINGLETON SOUTH PM10: 30.1
Moobi
Upper Rouchel
Bunnan
Glenbawn
Mount Royal National Park
Bowmans Creek
Carrowbrook
Goorangoola
Baerami
Widden
Baerami Creek
Mirannie
Singleton Heights
Singleton
Mount Thorley
Putty
Broke
Rothbury
Greta
10 km
5 mi
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Table 4 Controlled emissions from PKCT activities during the 2015/16 NPI reporting period

Activity		TSP Emissions (t/year)	PM_{10} Emissions (t/year)	$PM_{2.5}$ Emissions (t/year)
Wind erosion	Coal stockpiles	51.1	25.5	3.8
	Bulk product stockpiles	12.7	6.3	0.5
	Exposed spillage areas	5.4	2.7	0.4
	Exposed cleared areas	1.4	0.7	0.1
Conveyors	Conveyors	14.3	5.2	1.0
Handling	Stacking	1.9	0.9	0.1
	Reclaiming	1.9	0.9	0.1
	Shiploading	1.2	0.6	0.1
	Transfer points	3.3	1.5	0.2
	Road receival	0.7	0.3	0.1
	Rail receival	0.4	0.2	0.0
	Bulk material handling	0.2	0.1	0.0
Vehicle movements	Unpaved areas	0.3	0.1	0.0
Total		**94.7**	**45.1**	**6.5**

Table 2. Annual Particulate Matter Emissions given Partially Uncontrolled and Controlled 2011 Operations

Mine Activity Categories	Partially Uncontrolled			Current Controls		
	Annual Emissions (tonnes/year)			Annual Emissions (tonnes/year)		
	TSP	PM_{10}	$PM_{2.5}$	TSP	PM_{10}	$PM_{2.5}$
Wheel Generated Dust	25,389.00	7,781.56	778.16	6,347.25	1,945.39	194.54
Wind Erosion of Overburden	279.65	139.83	20.97	232.22	116.11	17.42
Loading/Dumping Overburden/Topsoil	1,123.82	619.01	72.72	853.34	464.84	55.68
Blasting	152.35	79.22	4.57	152.35	79.22	4.57
Bulldozing Coal	403.24	92.24	8.95	403.24	92.24	8.95
Bulldozing Rejects	60.75	11.65	1.34	42.52	8.16	0.94
Bulldozing Overburden/Topsoil	536.18	256.03	89.92	536.18	256.03	89.92
Wind Erosion of Exposed Areas	198.90	99.45	14.92	180.63	90.31	13.55
Wind Erosion of Coal Stockpiles	17.70	8.85	1.33	12.39	6.20	0.93
Material Transfer Rejects	2.11	0.45	0.04	2.11	0.45	0.04
Trucks unloading Coal (hopper)	302.60	43.52	5.75	302.60	43.52	5.75
Loading Coal Stockpiles	122.13	17.79	2.36	121.37	17.52	2.32
Graders	469.96	128.81	14.57	117.49	32.20	3.64
Drilling	48.44	25.19	1.45	14.53	7.56	0.44
Coal Crushing	254.77	101.91	38.22	38.22	15.29	5.73
Loading Coal to Trucks	151.30	41.34	5.75	151.30	41.34	5.75
Material Transfer of Coal	5.93	2.67	0.40	3.87	1.81	0.27
Train Loading	1.09	0.38	0.06	0.33	0.11	0.02
Other Crushing (waste rock)	1.43	0.57	0.22	1.43	0.57	0.22
TOTAL	**29,521.34**	**9,450.47**	**1,061.68**	**9,513.36**	**3,218.88**	**410.66**

RAMBOLL ENVIRON | Appendix H Air Quality Peer Review Wilpinjong 15 July 2016

Table 2: Source specific particle size distribution

Emission Source Type	Percentage by Particle Size		
	TSP-PM_{10}	PM_{10}-$PM_{2.5}$	<$PM_{2.5}$
Unpaved Roads	72.4%	24.8%	2.8%
Bulldozer on coal	82.5%	15.3%	2.2%
Bulldozer on overbuden	77.9%	11.6%	10.5%
Overburden Handling	52.7%	40.1%	7.2%
Coal Handling	86.9%	11.2%	1.9%
Unpaved Roads	72.4%	24.8%	2.8%
Value used in AQIA for all sources	**60.9%**	**34.4%**	**4.7%**

Attachment references SSHEG Rixs Creek Mine Continuation Dec 2015

Attachment 1 SSHEG Document March 2014
- Mining Pollution Mitigation Priority Action
- Blasting Pages 1 -10.

Attachment 2 SSHEG "Elimination of Mine Blasting into the Air" April 2014

Attachment 3 Report on MTW Blast 20th Sept 2013 BOC Workers "Gassings"

Attachment 4 SSHEG Presentation of Community Health Concerns 2013

Attachment 5 SSHEG Review Summary May 2015
- incl Mining Dialogue Summary 2011 – 2014
- Appendix M7 SSHEG Review 2015 Presentation Pgs. 38–40.