

Without Prejudice

Singleton Shire Healthy Environment Group

“Rixs Creek Mine Continuation Dec 2015”



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

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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

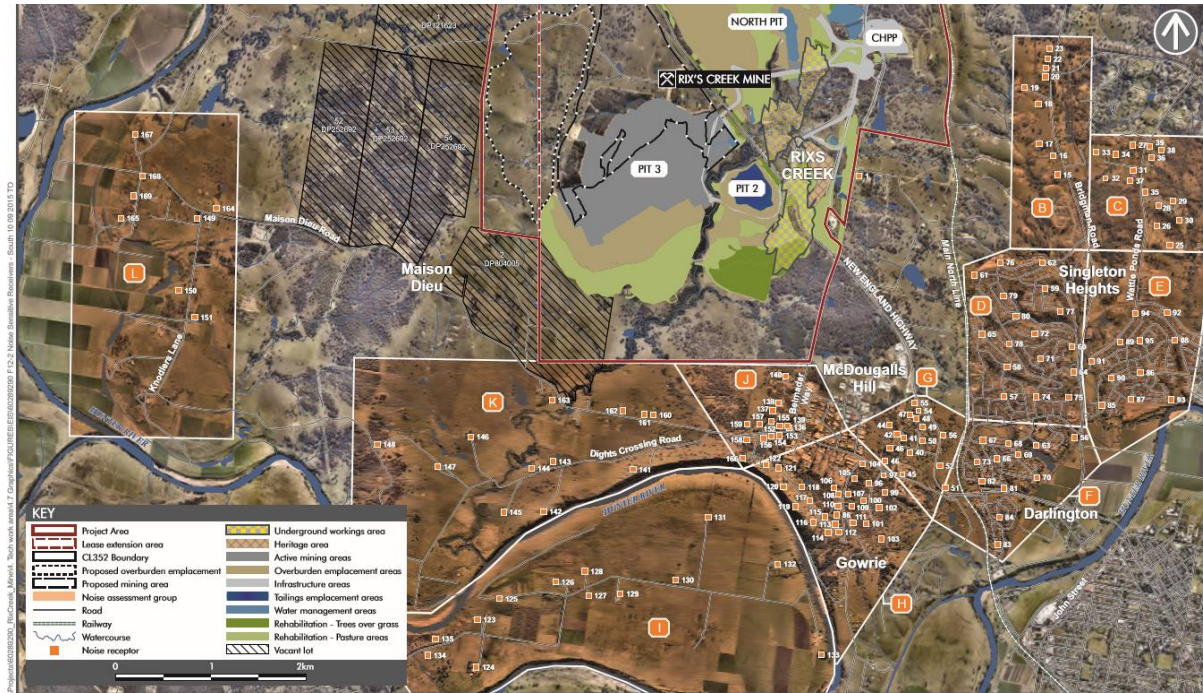
Minimisation

Time Averaging to Hide Air and Noise Pollution”

“Mining Industry Culture Change towards Minimising Air and Noise Pollution”
We operate within our limits”.

Time Averaging currently allows Mines to “Control Operations so as not to exceed their Target Daily PM10 Limits” covering periods of some Hours well above even outdated NEPM standard PM10 Rates, for Example.

SSHEG concern for the Rixs Creek Mining Continuation Project is based on the need to restore a better balance of the "Health Risk for Residents" to compensate for the removal of the long standing practice of "Mine Buffer Zones" effectively separating Residents and Industrial Pollution; this approach establishes that "Near Neighbours, Farmers and Farmers Families and Villages and especially Children" are presently bearing the brunt of Mine Pollution on account of their proximity to Mines as illustrated below. Increased Production rates only amplify the Residents Concern.



SENSITIVE RECEIVERS - SOUTH
Rix's Creek Continuation of Mining
Environmental Impact Statement

FIGURE 12-2

"Near Neighbour Singleton Shire Residents" experience a range of "15 Minute STEL Pollution Exposures" Air Pollution Exposures which are now associated with "Lung Cancer, Cardiovascular Diseases and Respiratory Diseases, Bladder Cancer, etc.

Significantly, WHO has refocused attention on Short Term (Minute and Latency Days) Particulate Matter as PM_{2.5} (Fine) and PM_{2.5-10} (Coarse) association with a range of Human Diseases, while Quantifying Long Term (Annual Average) PM₁₀ Air Pollution Exposure Population Disease Impact.

Better targeted Future Community Health Surveys now muted in 2015 to repeat 2008 SSHEG Community Health Surveys are expected to better quantify impacts for Short (multiple 15 Minute Pollution Exposures), Medium (Daily Average Exposure) and Long Term (seasonal Exposure - 3 Months); compared to the current Epidemiology Cohort based Annual Average Pollution Exposure and NEPM Standard reference base.

In the Medium Term, SSHEG therefore in making this submission, considers that additional "Concurrent Real Time Air Pollution Monitoring" is long overdue (TSP, PM₁₀, PM_{2.5} and PM₁) with Gases and Particulates Matter Sampling for Microscopy and Chemical Analysis including Gases {Ozone, CO, CO₂, SO_x, NO_x, CH₄, formaldehyde, and VOC's) located for example at Receptor 138 or selected from Resident's Complaints History for Assessment Groups J, G & H in Figure 12.2 above.

In the Short Term, the Upper Hunter Air Quality Monitoring Network has confirmed the Valley Air Pollution Streamline Flow Drifting behaviour of PM10 and PM2.5. The WHO Disease significance now of Rixs Creek Mine Daily PM2.5 Emissions is coupled with the South Easterly Valley Air Drifting Flow Patterns towards Singleton Residents is illustrated in Figure 1 below. This combination establishes the requirement for Rixs Creek Mine along with other Hunter Valley Mines to strategically locate “Concurrent PM10, 2.5 TEOM Type Monitors”, which are then expected to provide the basis for PM2.5 Fine, PM2.5-10 Coarse, and PM10 Real Time Pollution Mitigation Controls to protect Residents.

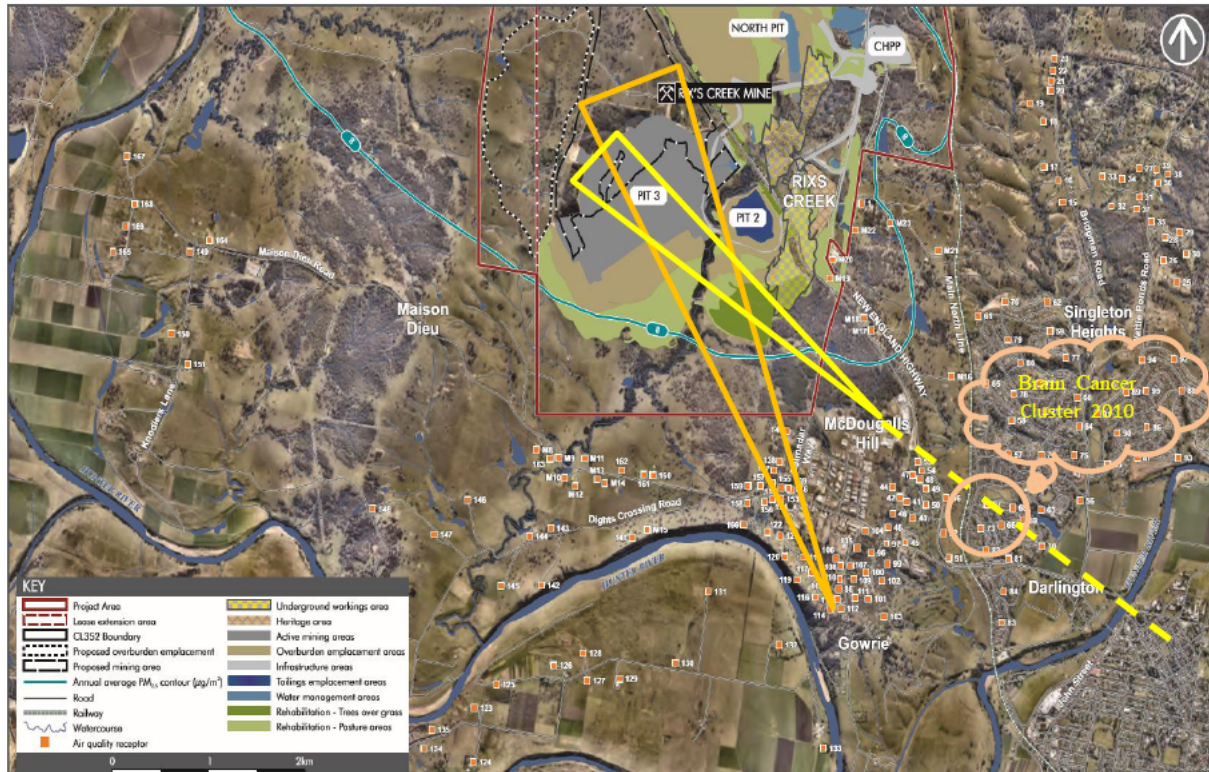


FIGURE 1 Illustration of Air Pollution Drifting Impact on Singleton Assessment Resident Groups

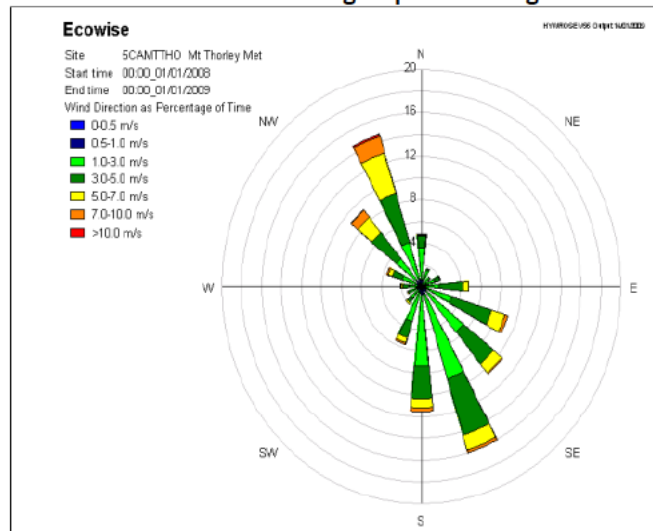


Figure 14: 2008 Annual Wind Rose

Time Averaging has also distorted the understanding of Air Drifting Flow Paths passing across Mines. In this case an Annual Average completely distorts and Hides the actual prevailing conditions, while the actual 15 Minute based Wind Direction Wind Rose would be much more scattered.

Note Meteorological Variability

If anything, there are more of the same methods and evaluations of the type that have attracted Community criticism by CCC Members over the years particularly regarding Air Pollution and Blast Plume Drifting Modelling, especially the Variability of Valley Meteorological Conditions, Year on Year; and the **“Time Averaging of Air Pollution Data that destroys its Disease Risk Intelligence”**.

SSHEG is critical of the somewhat selective Meteorological Conditions that are been used for both the Air Quality and Noise Modelling.

The Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (the EPA Approved Methods DEC2005) does however place the onus upon Rixs Creek Mine to make sure that “Data must be representative of the area in which emissions are Modelled”. Data used needs to represent the likely conditions across the 21 years of operation of Mining. This includes the Air Stream Flow Variability across Minutes.

Figure 1 also Illustrate the significant issues faced by Rixs Creek Mine to limit the Airborne Pollution Emissions during the Winter Months (which can extend from July through to late September) when South Easterly Flowing Valley Air is Drifting directly across the Mine Workings and then over close-by Singleton Residents as indicated. Of particular note is the added impact of the Rail line and New England Highway with the somewhat concentrated presence of Diesel Exhausts Pollution, in an area where previous Community concerns of a Cancer Cluster were investigated.

For the Rixs Creek Continuation Project, a significant change is required to strategically locate *“Concurrent PM 10 & 2.5 Real Time Monitors (15 Minute based)”* in each of the Assessment Group in Figure 12.2 above to protect these Singleton Shire Residents.

Such Monitors would provide the basis to **Mitigate Air Pollution by Minimisation** for example by the judicious use of favourable Air Drifting Patterns throughout the Day to avoid vulnerable Resident Groups. Alternatively, Rixs Creek could use a *“Real Time PM Dispersion System”* based on Mine equipment 15 minute activities and local measured Meteorological movements across the Mine Site.

Some indication of the issues to be balanced by Rixs Creek is the impact of the cluster of Mines in Figure 2-2, Ravensworth Mt Owen operations, and close by the development of Aston South, EL5291, Singleton Town spread 1989 -2013, with TSP Dust Gauge Isopleth patterns providing a guide to Air Pollution drifting Paths.

Elimination of Mine Blasting Plumes into the Atmosphere

The Rixs Creek Mine Air Pollution entrainment in South Easterly Drifting Flows is further complicated when Mine Blasting is examined.

SSHEG reviews in 2014 ([Attachment 1](#)) entitled “SSHEG Document March 2014 Mining Pollution Mitigation Priority Action” identified Two Compliance Licence Conditions;

(1) *Elimination of Blasting Plumes into the Atmosphere.*

(2) *Residents in the Maison Dieu, Singleton Heights, Retreat, Hamilton Hill – Gouldsville _ Long Point Rural Environs to be designated as “Occupational Exposure to Mining Status” concurrently as a Precinct with HVO , Ravensworth – Mt Owen, Integra Mining Operations cumulative “Air and Noise Pollution” requiring “Minimisation NOT Time Averaging to Hide Residents Pollution Exposure”.*

SSHEG concluded “The Elimination of Blast Plumes into the Atmosphere” would be the most significant step that the Mining Industry and Orica etc. could take towards reestablishing a better balance in the Hunter Valley. *“This can be achieved”.*

The Disease and Sickness Risk to Near Neighbours from Mine Blasting in the Hunter Valley, with Mines located amongst Rural Residents, depends entirely on Mining Blast Protocols and repeatable Meteorological Wind to dissipate Toxic Blast Plumes. The reality is that Wind Directions have been known to change direction unexpectedly just after Blasting. A repeat of the SE Qld “Gassing and Hospitalization of 21 Mine workers some Kms from the blast site remain a reality in the Hunter Valley.

We feel that for Open Cut Mining to continue Operating beside Residents in the absence of “Community Buffer Zones” in the Hunter Valley that it is essential that a way forward of Pollution Mitigation be added to existing Mitigation measures that not only reestablishes a better Balance but also is seen by the affected Residents and the Community as establishing that Balance.. However the risk of “Near Neighbour Gassings” demands action.


With the WHO 2013 Disease Risk knowledge that Air Pollution is now known to have “No Safe Threshold”, it is not surprising when Residents see HUGE Blast Dust and Toxic Plumes rising into the air and drifting towards their Homes and are alarmed that their and their Children’s Health may be affected. Should this Plume be bright orange, then it strikes panic and resentment in the vulnerable of the Community, and soon Community Complaints flood the Authorities and Health Warnings are issued. *Refer Photos.*

However the reverse is now also known to be true, where Blast Plume that are colourless and almost invisible are much more dangerous as no visible warning is present. Such an incident was recorded and briefly documented in 2013 as outlined in [Attachment 3](#).

Blast Management Plans have failed by focusing only on the Presence of Nitrogen Dioxide Orange Component in the Blast Plume claiming this is Best Practice Blasting, while the real Danger is from the colourless Gases, Vapours, Particulates and Aerosols as products of the Explosions and Flame emitted from the Blast Holes into the atmosphere resulting from inefficient and ineffective Stemming. *“Better Blast Hole Stemming is Needed”*

These “Mine Blast Gassings” have occurred elsewhere across the Hunter Valley and should have been red flags to Government Authorities and Mining Companies that action was required. The recent “Gassing” of BOC workers outside the MTW Lease area Blast on 20 September 2013 highlights ([Attachment 3](#)) that **notification of Blast time is not sufficient**, but rather **evacuation of residents** within a prescribed range of say 5 to 15 kms in the **Predicted Blast Plume Drifting Pathway** is a more realistic Mine procedure when Blasting of suspect Strays or during unexpected Water damaged Shots have to occur for Mine personnel safety reasons.

Rixs Creek has not escaped Blast Plumes Drifting off Site and returning to ground nearby, as illustrated

• RIX'S  CREEK •

9	18/7/2013	Resident	Rix's Creek Lane	Complaint regarding the sound of shooting at the mine. Kangaroo culling being undertaken. Still and calm noise must have enhanced noise so Rix's personnel and shooters relocated away from the location of concern.		X				
10	19/7/2013	Resident	Maison Dieu	Complaint regarding operational noise all week and especially night of the 18/7/2013. Weather conditions enhance noise during this time of the year. Mine currently modifying West Pit to minimise		X				
11*	30/7/2013	Resident	Singleton Heights	Inquiry regarding blast in West Pit @ 14:12 pm as to whether Rix's Creek did blast and blast was within its limits. Blast results provided to resident. Resident did not wish to complain.	X*					
12	13/8/2013	Resident	Maison Dieu	Operation noise has been loud in Maison Dieu area especially during winter. Rix's Creek aware of noise issues and has amended West Pit to minimise noise impacts, however, changes won't be completed until end of 2013.		X				
13	14/8/2013	Resident	Maison Dieu	Resident woken at 5am by mine machine noise. Dragline worked during night (usually shut-down) due to EX3600 excavator being broken down. Rix's Creek lowering haul road in West Pit to minimise noise impacts which is likely to be completed end of 2013.						
14	21/8/2013	EPA Complaints Line regarding three complaints to EPA regarding a blast	Singleton and Singleton Heights	Complaints regarding dust emitted from blast as well as strong odour. Rix's Creek did conduct a blast with dust cloud remaining stagnant in air for long duration due to low wind speed. Zero fume from blast. Rix's Creek provided report to EPA.						
15	21/8/2013	Planning Compliance Singleton	Petty Road	Complaint regarding large dust cloud being emitted from Rix's Creek mine. Rix's Creek did conduct a blast with dust cloud remaining stagnant in air for long duration due to low wind speed. Zero fume from blast. Rix's Creek provided report to DP&I.	X		X			
16*	13/9/2013	Planning Compliance	Passing site on NEH	Inquiry to Marion 305 dragline dust in West Pit (surface level) whilst driving past site. Dragline was not			X*			

Blast Dust and
Odour
14 & 15

2

Rixs Creek Blast Fume exposure in Maison Dieu Industrial Estate was the subject of SSHEG ([Attachment 2](#)) and Singleton Compliance Officers Investigation in 2014 which was inconclusive as some conjecture prevails as to the dissipation of the Blast and the Drifting Path or paths that occurred. SSHEG viewed Mobile Phone Video of a number of blasts with diary notes of respiratory and eye impact, but as proper Technical and detailed Reports were not produced or forthcoming, proper scrutiny and investigations has not occurred. However it is clear that Rixs Creek Mine Blasting does impact Near Neighbours and their Health Safety is only identified when a Complaint is Recorded.

It is therefore incumbent on the Government Authorities and Mines where they should be aware of the “potential Gassing Incidents” to immediately report these events to the Environmental Health and Health, Planning, EPA Ministers who are liable to administer the provisions “under the Act”.

Summarising, the Communities concern is the following extract from “*The Maitland Mercury* by Matthew Kelly Nov 4 2013” shortly after the WHO Air Pollution Announcements and Newcastle Air Quality Forum in September 2013. (Notations highlighted in Red relate directly to Rixs Creek Mine SSHEG Health Concerns).

“NSW Health investigated a **suspected brain cancer cluster in the Singleton area in 2010** following long-held community concerns about the health impacts of coal dust.

The investigation, which focused on five cases over a 35-year period, was unable to find a direct link and concluded the cases were a statistical anomaly. It did, however, **suggest the cases and their potential causes were worthy of further investigation.**

Professor Wayne Smith from NSW Health’s environmental health branch said the agency’s statement was accepted knowledge in the field of air pollution research.

“The ... **statement provides additional justification for the actions that the NSW government is taking to reduce the population’s exposure to air pollution**, including the actions being taken in the Upper Hunter,” he said.

NSW Health data, released at September’s air quality forum in Newcastle, estimated **fine particle pollution** resulted in 25 deaths in the greater Newcastle area each year. **Two deaths a year were attributed to exposure to fine particle pollution in Muswellbrook and Singleton.** Fine particle pollution causes 223 deaths in Sydney each year.

A NSW Minerals Council spokesman said the industry was committed to improving air quality. “Mining contributes to regional particulate matter, but we’re one of many contributors. Other sources include cars and other transport, sea spray, bushfires and wood smoke from homes,” he said.”

Two SSHEG Documents provide the background of our engagement with Government Authorities, Hunter Community, Mining and Power Stations over the last ten years.

Attachment 4 is a 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.

SSHEG contend that the Environment in the Hunter Valley, especially with Poor Air Quality from Pollution Emissions of Gases, Particulates, Vapours, Fumes, Aerosols, Pollens, etc., requires better targeted Short Term Monitoring of the Composition, Toxicity, Exposure and related Health effects. By 2014 sees the challenges of the new World Health Organisation “Stochastic” Air Pollution Paradine, requiring better Mitigation steps to reduce these Health Risks for Residents.

But it is especially all children, Pre & Post Natal and Children under 8 years of age that are now being confirmed as one Population Group vulnerable to Air Pollution; confirming the Singleton Community Health Survey Reports. These SSHEG Health Surveys in 2008-9 and Community Reports by 2010 already identified that the Air Pollution of the Cluster of Mines in the Hunter Valley are often Hour by Hour impacting the Health of all Residents Groupings in Bulga-Broke Micro Valley area, Glenden Brook Valley, Mt Royal, Muswellbrook and Singleton Shire, for both Long and Short Term Exposures.

Dr Neville Hodkinson PhD

Singleton Shire Healthy Environment Group

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| <i>Attachment 1</i> | SSHEG Document March 2014
- Mining Pollution Mitigation Priority Action
- Blasting Pages 1 -10. |
| <i>Attachment 2</i> | SSHEG “Elimination of Mine Blasting into the Air” April 2014 |
| <i>Attachment 3</i> | Report on MTW Blast 20 th Sept 2013 BOC Workers “Gassings” |
| <i>Attachment 4</i> | SSHEG Presentation of Community Health Concerns 2013 |
| <i>Attachment 5</i> | SSHEG Review Summary May 2015
- incl Mining Dialogue Summary 2011 – 2014
- Appendix M7 SSHEG Review 2015 Presentation Pgs. 38–40. |

TOXIC SKY: Mine blast goes wrong

By JOANNE McCARTHY Feb. 20, 2014, 10:30 p.m.



FALLOUT: The sky above Mount Arthur Mine near Muswellbrook turns a bright orange due to the toxic fumes.

MOUNT Arthur mine has been accused of putting "profit before people" after a toxic orange fume darkened the Muswellbrook sky on Wednesday and prompted demands for a much stronger response from environmental regulators.

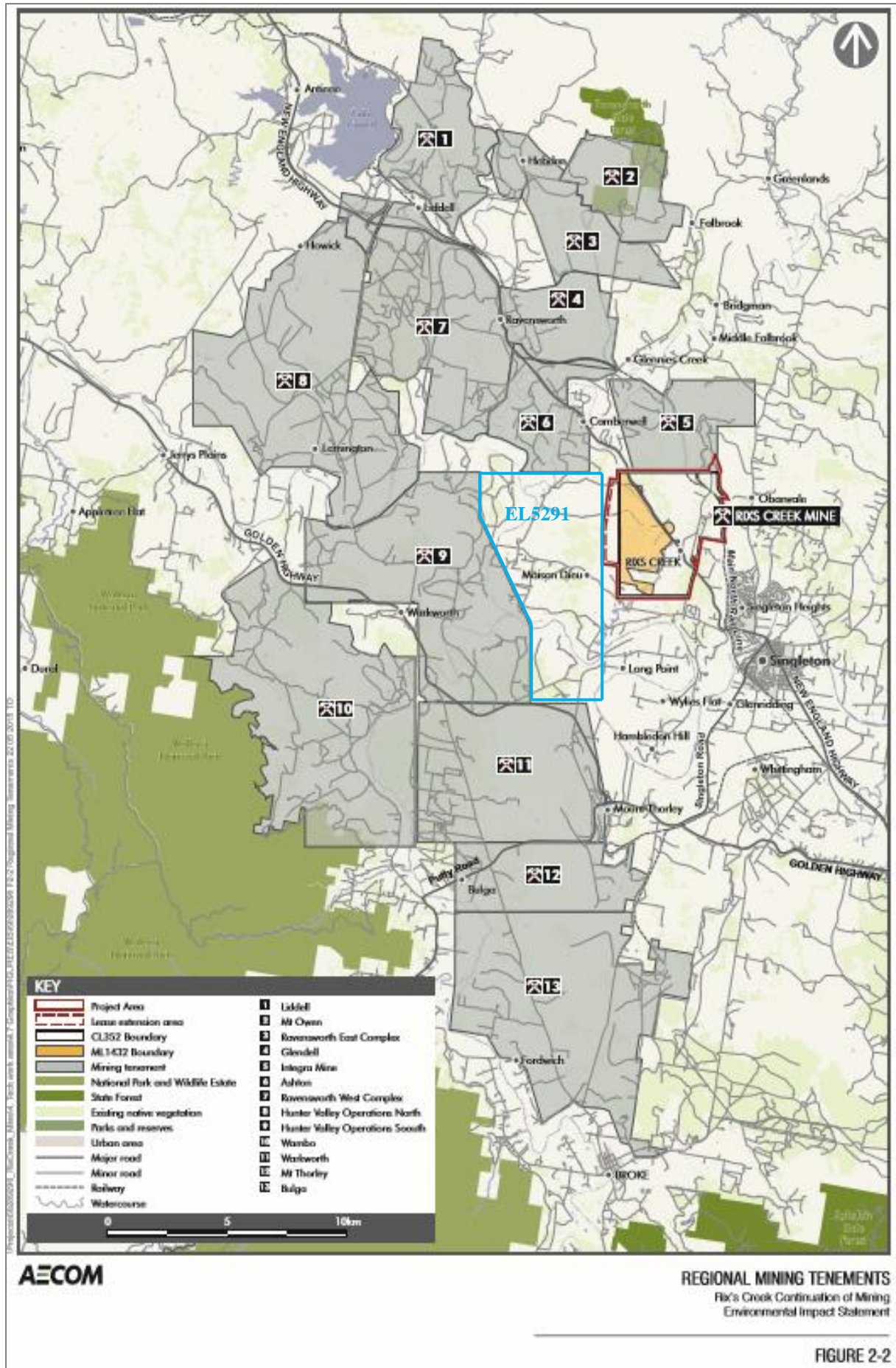
The Environment Protection Authority is investigating a blast at 2pm that led to health warnings and an apology from BHP Billiton after the fume containing poisonous nitrogen dioxide spread several kilometres from the site.

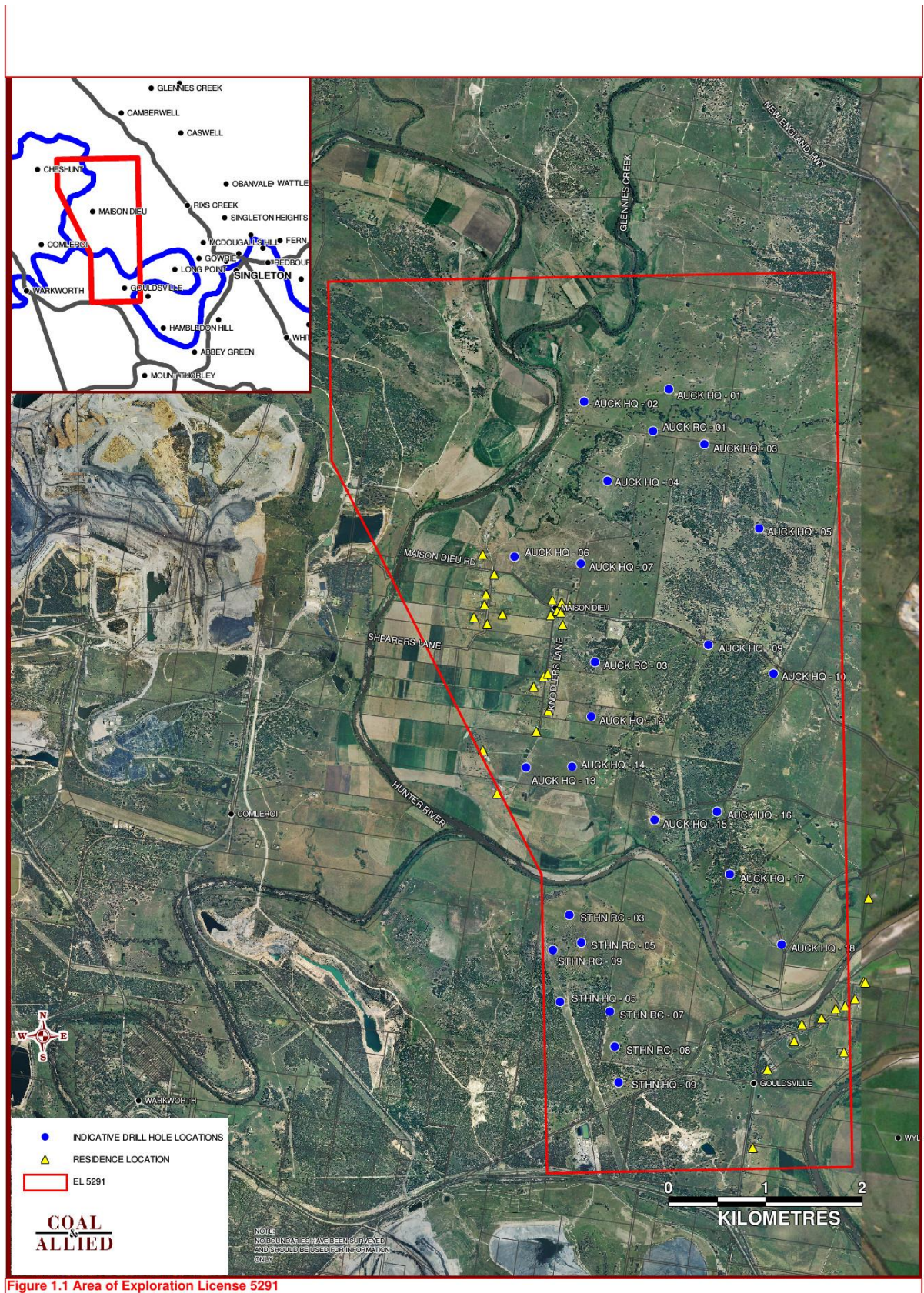




Blast Plume sucked down slope to Glennies Creek Slow dissipation over Camberwell

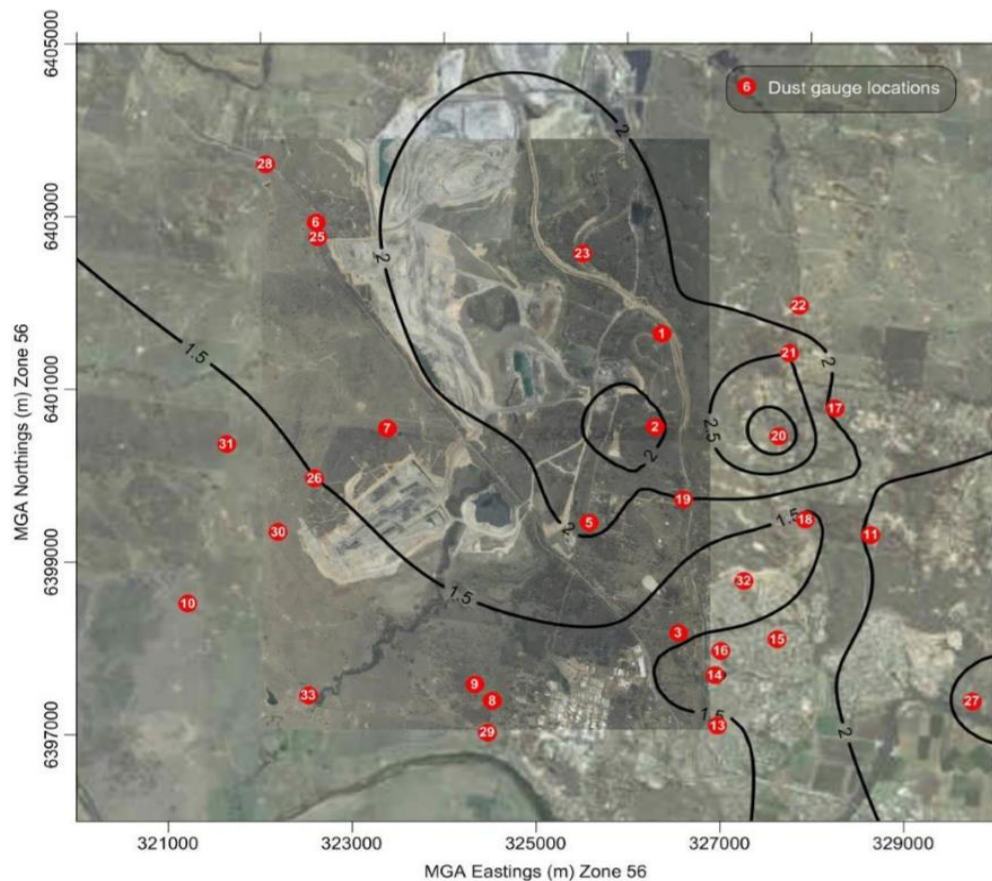
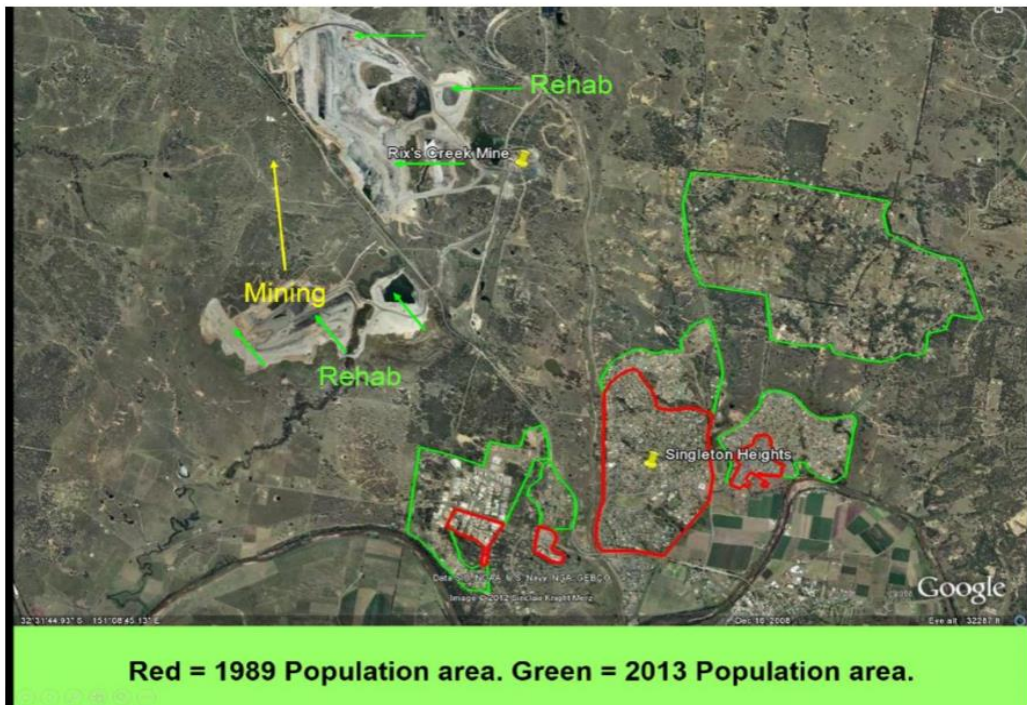
Camberwell Gassing Incident 2004 Lethridge St. area viewing North





RIX'S CREEK MINE COMMUNITY CONSULTATIVE COMMITTEE MEETING MINUTES –27/05/2014

Rehabilitation has been designed to shield the operation from nearest residences / townships and to move away aligned to production rates.



RIX'S CREEK MINE COMMUNITY CONSULTATIVE COMMITTEE MEETING MINUTES – 9/09/2014

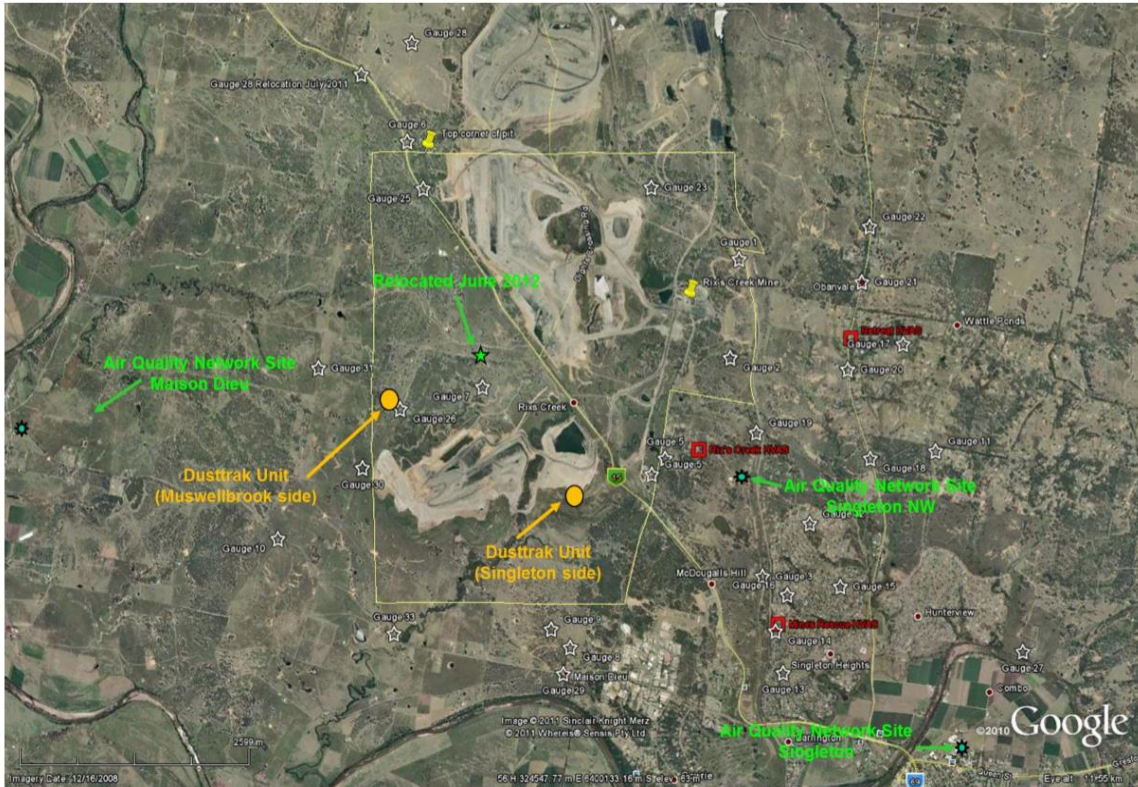


Figure 1 **Air Quality Monitoring Location Map**