



Department of
**Environment and
Heritage Protection**

Enquiries Zoe Immisch
Telephone (07) 5583 2132
Our reference CR65296

sch4p4(6) Personal information

12 January 2015

Dear sch4p4(6) Personal information

Re: Respirable Crystalline Silica Dust Monitoring

I refer to your email correspondence to the Department of Environment and Heritage Protection (the department) on 11 December 2014, regarding dust from quarrying operations. Specifically, you have raised concerns regarding the impact of respirable crystalline silica (and asbestos, a silicate mineral) on surrounding community members.

In response to the matters you have raised, the department has initiated a preliminary investigation to assess the likelihood of environmental risk from the quarry operations in the Ormeau / Yatala region with respect to the release of respirable crystalline silica dust. As part of the investigation, the department has requested that all significant quarry operations in the area submit their dust deposition monitoring results for the preceding two years and petrographic reports for review.

In addition, the department has sought comment from the Air Quality Sciences unit of the Department of Science, Information Technology, Innovation and the Arts (DSITIA) on the matter. As you are aware, DSITIA performed the 2008-2009 quarry dust investigation at Mount Cotton.

Following the submission and review of the abovementioned data, the department will assess the requirement for more specific dust monitoring pertaining to the release of respirable crystalline silica. In the interim, the department offers you the following information for your perusal.

Silica and silicate compounds comprise a significant proportion of the earth's crust, however the potentially harmful form of crystalline silica (free silica) represents only a fraction of the total silica content within rock formations. The three most common forms of crystalline silica are Quartz,

Cristobalite and Tridymite. The potential health impacts from crystalline silica depend on particle size (and shape). Airborne particles (dust) range in size from 0.1µm to 500µm, however human health impacts are typically associated with particles of less than 10µm (PM₁₀).

Particles that can enter deep into the lungs are termed 'respirable'. These particles are often too fine to see unless specific lighting conditions occur. The respirable fraction of dust (less than 10µm) is the mass of inhaled particles penetrating the smallest (non-ciliated) airways of the lungs. Repeated and prolonged exposure over many years to relatively high concentrations (or short-term exposure to extremely high concentrations) of crystalline silica can cause silicosis (lung disease). Recent scientific studies suggest that chronic levels of silica-containing mineral dust that do not cause silicosis, may still cause development of chronic bronchitis, emphysema and small airways disease.

The exposure of quarry workers to potentially harmful levels of respirable crystalline silica is regulated by the Department of Natural Resources and Mines through the *Mining and Quarrying Safety and Health Regulation 2001*. Currently, the national occupational exposure standards for the three most common forms of respirable crystalline silica; Cristobalite (CAS 14464-46-1), Quartz (14808-60-7 and Tridymite (15468-32-3) are set at 0.1mg/m³ as a time weighted average for an 8 hour day, 5 days per week.

Currently there is no Queensland EPP Air quality objective or national ambient air quality guideline for crystalline silica. The Victorian Government's *Protocol for Environmental Management for Mining and Extractive Industries* criterion for crystalline silica is based on the Californian Office of Environmental Health Assessment (OEHHA) chronic inhalation Reference Exposure Level (REL) of 3µg/m³ for respirable crystalline silica, for community exposures (measured in the PM_{2.5} fraction). This was the value used to assess the risk of community exposure for the Mount Cotton investigation. The investigation concluded that the annual average PM_{2.5} crystalline silica concentrations in the Mount Cotton community were very low, less than ten per cent of the guideline value of 3µg/m³.

The release of crystalline silica dust from quarrying operations in the Ormeau / Yatala region is not unexpected. The geological composition of the Neranleigh-Fernvale beds in which these quarries exist, consist of regionally metamorphosed sedimentary and volcanic rocks containing siliceous compounds. Dusts from quarrying may contain silica in both crystalline and non-crystalline forms, however it is critical to note that exposure only to the 'respirable' crystalline silica fraction (<10µm) poses the health risks discussed above.

The health risks associated with respirable crystalline silica are at maximum levels at the source of dust generation. It can therefore be assumed that where the national occupational exposure standards are being complied with, the exposure to the general community would be very low and unlikely to pose a health risk. However due to the complex arrangement of quarries in the region, further departmental investigation is intended to verify that this is the case.

The emissions to air, land and water from the quarrying activities are regulated by the department

as Environmentally Relevant Activities under conditions of Environmental Authorities issued in accordance with the *Environmental Protection Act 1994*. The department sets standard conditions for quarries regarding dust emissions, including nuisance dust emissions and dust emissions potentially affecting human health. Quarry dust emissions are managed through various technologies and management practices adopted on site. Typically, the department do not prescribe *how* quarries must control their dust emissions; however they do prescribe dust deposition limits that must be complied with. Quarries must monitor air quality at the direction of the department, in addition to workplace monitoring conducted in accordance with Workplace Health and Safety requirements under the *Mining and Quarrying Safety and Health Regulation 2001*.

With regards to long-term ambient air quality monitoring, this is a service provided by the Air Quality Science unit of DSITIA who have established 13 air quality monitoring stations throughout Queensland. The closest monitoring station to the Ormeau / Yatala region is located at Springwood, with PM₁₀ and PM_{2.5} data collected and made publicly available via the DSITIA website. For more information regarding the air quality monitoring network please contact the DSITIA Air Sciences Unit at GPO Box 5078, Brisbane Qld 4001 or visit the Air Quality website at <http://www.qld.gov.au/environment/pollution/monitoring/air/>. Pending the outcome of the department's preliminary investigations, where warranted, the department may consider the establishment of monitoring equipment to determine the specific levels of respirable crystalline silica from the quarry operations in the Ormeau / Yatala region.

As discussed above, the department will continue their investigation and you will be advised of any outcomes. Should you require any further information please feel free to contact Principal Environmental Officer Zoe Immisch on (07) 5583 2132 or email zoe.immisch@ehp.qld.gov.au.

Yours sincerely,

sch4p4(6) Personal information

12-1-15

William Inonda
A/Compliance Delivery Manager
South Queensland Compliance
Gold Coast, Scenic Rim & Redlands
Environmental Services and Regulation
Department of Environment and Heritage Protection

Subject: Respirable Crystalline Silica dust – Gold Coast quarry operations

Date: 14/01/2015

Project reference: CR65296

File Note: Phone meeting between Zoe Immisch (Principal Environmental Officer, South Queensland Compliance, EHP) and Dr David Wainwright (Director Air Quality Sciences, DSITIA)

- Work request sent to AQM, Air Quality Sciences, DSITIA requesting comment and advice regarding the best approach for determining the risk associated with the release of respirable crystalline silica (RCS) from the numerous hard rock quarries in the Ormeau / Yatala region.
- David Wainwright (DW) contacted Zoe Immisch (ZI) to discuss the matter and recommended that air monitoring equipment be established in the vicinity of the quarries to determine the PM₁₀ and PM_{2.5} and crystalline silica fractions of dust generated from the quarries. DW advised that it was likely that dust particles of this size were most likely generated from other sources such as highway use however there are minimal other avenues for determining whether the quarries are having an impact or not.
- The three main sampling options are: static samplers (require changing every few weeks); the partisol samplers (also used for several weeks and minimum 7 days – prevents 24 hour readings; and the continuous samplers (used at Mt Cotton quarry investigation).
- DW urged ZI to obtain the OHS monitoring results for the RCS conducted on quarry operators, required in accordance with Workplace Health and Safety requirements under the *Mining and Quarrying Safety and Health Regulation 2001*. These results will assist in establishing the best monitoring program for DSITIA.
- DW advised that monitoring could be conducted over an extended period of time, but best to concentrate on the worst possible conditions, i.e. peak exposure (advised by complainants) in order to extrapolate the data and determine whether the dust concentrations experienced during peak exposures exceeds environmental health standards.
- The RCS environmental standard EHP / DSITIA will use to determine the risk of RCS on the community will be based on the Victorian EPA Reference Exposure Level 3µg/m³. This level was established through community and industry consultation.
- DW advised that the funding for the program will be from the AQM base funding arrangements.
- DW requested that ZI be able to assist in equipment maintenance during the program. ZI agreed.
- DW and ZI agreed that the program would be best to commence following the rainfall season, towards April onwards. Likely to utilise the continuous sampler and partisol.
- DW advised that Q Health may be engaged to analyse data and provide additional support with respect to matter.

Signature

sch4p4(6) Personal information

Author: Zoe Immisch
Position: Principal Environmental Officer
Unit/Office: Environmental Services Gold Coast
Phone: 5583 2132

EHP RTI DL Release



Hon Dr Steven Miles MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Ref CTS 15640/16

Level 13
400 George Street Brisbane Qld 4000
GPO Box 2454 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7330
Facsimile +61 7 3220 6231
Email environment@ministerial.qld.gov.au

sch4p4(6) Personal informa

Database Coordinator
Yatala Residents Alliance
PO Box 445
BEENLEIGH QLD 4207

sch4p4(6) Personal informati

Dear 4(6) Personal inf

Thank you for your letter of 16 June 2016 concerning air pollution in the Yatala area.

I have asked officers of the Department of Environment and Heritage Protection (EHP) to respond to your correspondence, who have sought advice from the Department of Science, Information Technology and Innovation (DSITI), and Gold Coast City Council (GCCC) in responding to your concerns.

NPI Emission Data

EHP notes your concerns regarding the annual output of crystalline silica and asbestos dust from the Hanson Wolffdene and Holcim Beenleigh quarry operations. However, you are advised that the PM_{2.5} particulate matter data that you refer to, sourced from the National Pollutant Inventory (NPI) only includes particulate matter generated from the combustion of fuel in vehicles at the Holcim Beenleigh and Hanson Wolffdene quarries for the 2012/13 reporting period. It does not relate to dust emissions from rock extraction or crushing activities. The PM₁₀ particulate matter data includes particulate matter generated from all activities associated with the quarry operation, including for example, blasting, crushing, materials handling, as well as from fuel combustion from vehicles. As such, the PM₁₀ and PM_{2.5} particulate matter emissions data for these operations cannot be used to calculate the total crystalline silica and asbestos dust emissions from these sites.

Asbestos Dust

Asbestos is the term used to describe a group of naturally occurring minerals whose characteristic feature is that they occur as fibres. Airborne particles (dust) range in size from 0.1µm to 500µm, however human health impacts are typically associated with particles of less than 10µm (PM₁₀), termed 'respirable' as these can enter deep into the lungs. The respirable fraction of dust (less than 10µm) is the mass of inhaled particles penetrating the smallest (non-ciliated) airways of the lungs.

As such, it is important to note that whilst the rock composition at the Hanson Wolffdene quarry may be estimated at 3% asbestos, only the 'respirable' fraction of liberated asbestos material may pose a health risk.

EHP notes your concerns regarding the asbestos monitoring anticipated to be conducted as part of DSITI's investigation. Upon receipt of your correspondence EHP officers discussed the pending monitoring with DSITI and were advised that asbestos monitoring is to commence shortly. Asbestos monitoring is non-continuous and requires manual sampling. Due to its non-continuous nature, in order to detect the risk of health impacts from quarry operations, asbestos monitoring needs to be conducted during the most suitable weather conditions for this monitoring, ideally July to September. It is anticipated that EHP and DSITI will seek active community involvement for the asbestos monitoring. The results of the asbestos monitoring will be assessed against the accepted health criteria and provided in DSITI's final report which will be made publicly available upon completion.

Crystalline Silica Dust

As you are aware, DSITI are currently conducting an investigation into the levels of respirable crystalline silica dust generated as a result of quarrying activities with the Ormeau / Luscombe area. As concentrations of crystalline silica dust are expected to be highest at the source of emission, the investigation has established two monitoring locations that are positioned in close proximity to two quarries in the area. As such, whilst these sites do not represent the 'cumulative impact' from all of the quarries in the area, given their position adjacent to the quarries, these locations were chosen to allow DSITI to determine whether the crystalline silica dust levels experienced in close proximity to the quarry operations exceed the environmental health standards recommended for community health ($3\mu\text{g}/\text{m}^3$). It is anticipated that where the environmental health standards are exceeded at these 'close proximity' locations, EHP will seek to have the investigation expanded.

In addition to crystalline dust monitoring, continuous PM_{10} monitoring is conducted at the primary monitoring location in Luscombe. You are advised that DSITI and EHP are currently in the process of negotiating the establishment of continuous PM_{10} equipment at the secondary monitoring location in Ormeau.

You are advised that the continuous monitoring data to which you refer, was uploaded by DSITI based on the Queensland Government's open data requirements which require all continuous data to be uploaded on an annual basis. The data is not provided with the intention of establishing a live monitoring station similar to those established as part of DSITI's air monitoring network. Some of the monitoring conducted as part of the crystalline silica dust investigation is not of a continuous nature and is therefore not present in the dataset provided. DSITI have advised EHP that the continuous monitoring data recorded as part of the investigation for January 2016 onwards will be uploaded in 2017. The results of all monitoring conducted as part of the investigation, including crystalline silica dust and asbestos concentrations, will be presented in the final report prepared by DSITI, which will be made publicly available upon completion.

Bio-aerosol Monitoring

You are advised that the bio-aerosol monitoring program conducted in November 2015 was specifically in response to composting activities in Yatala that are regulated by EHP. The 'green waste shredding operation' you refer to in your correspondence, being operated by Powes Haulage Pty Ltd is not currently identified as an Environmentally Relevant Activity and therefore is not regulated by EHP. As such, the bio-aerosol monitoring program did not include monitoring of emissions from this operator.

Nuisance matters pertaining to activities of Powes Haulage Pty Ltd fall under the jurisdiction of the GCCC. I note that a copy of your letter has already been sent to Tom Tate, Mayor of GCCC. As a result of your correspondence, EHP officers contacted GCCC regarding the dust nuisance from Powes Haulage Pty Ltd. GCCC officers advised EHP that a Penalty Infringement Notice (PIN) had previously been issued to the operator in relation to dust nuisance; however the PIN was successfully contested in court in November 2015.

You are encouraged to lodge any future dust complaints pertaining to the operations of Powes Haulage to the GCCC dust pollution reporting service on 07 5667 5988.

Odour nuisance

With respect to the Phoenix Power Recyclers Pty Ltd Material Change of Use (MCU) application to which you refer, and the associated conditions placed on EHP's concurrence response (development permit) approved by court order on 7 May 2014, you are advised that these conditions will only become effective once the operator enacts the activity to which the MCU relates. As the operator is yet to enact the activity, these conditions are not yet enforceable. Currently, the operator is conducting its composting activities under its existing approval and relevant conditions, granted in 2007.

The site is however currently subject to an Environmental Protection Order (EPO) to which you also refer to in your correspondence. However, you are advised that Requirement 2 of this EPO allows for the operator to install and operate forced aeration to new windrows as an alternative to the construction of a sealed enclosure. In December 2015 EHP officers inspected and verified the installation of aeration to fresh windrows. You are advised that the EPO is still in effect and will continue to be subject to compliance assessment

24/7 Air Quality Monitoring

PM_{2.5} (particulate matter 2.5 micrometers or less in diameter) are produced from a wide range of man-made and natural sources including motor vehicle emissions, industrial activities, fires (controlled burns, bushfires, wood stoves), fossil fuel power plants, dust, pollen and sea spray.

EHP acknowledges your concerns with respect to the elevated PM_{2.5} concentrations observed on the 20th May 2016 at Canon Hill; however you are advised that Canon Hill, being located in Brisbane, is located approximately 30km to the north of Yatala and is subject to specific sources of PM_{2.5} different to those sources that are likely to affect the Yatala region. Canon Hill is located in an urban environment subject to increased levels of motor vehicle emissions as well as emissions from numerous industrial activities. It is therefore inappropriate to make reference to this monitoring station when discussing crystalline silica dust from quarrying activities in the Yatala region.

With respect to your request for the implementation of a 24/7 live monitoring station, as previously advised, air quality monitoring falls under the jurisdiction of DSITI and the portfolio of Honourable Leeanne Enoch MP, Minister for Innovation, Science and the Digital Economy and Minister for Small Business. It is noted that a copy of your correspondence has already been forwarded to the office of Minister Enoch.

EHP is focussed on achieving a positive outcome for the environment and as such would like to ensure that it focuses its efforts on the current level of compliance and operations that will be occurring in the future. As such, in the event of dust and odour nuisance incidents or other non-compliances, you are henceforth encouraged to report these through the pollution hotline on 1300 130 372. EHP takes compliance matters seriously and in the event that non-compliance is verified, appropriate enforcement action will be taken in accordance with EHP's enforcement guidelines.

I hope this information has been of assistance to you. Should you have further enquiries, please contact Mr Philip Halton, Chief of Staff in my office on (07) 3719 7330.

Yours sincerely

DR STEVEN MILES MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Departmental Endorsement CTS 10097/16

The information contained in this reply is endorsed by In House Legal Chief Counsel as at 28 April 2016.

EHP RTI DL Release



Hon Dr Steven Miles MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Ref CTS 04796/15

27 APR 2015

Level 13
400 George Street Brisbane Qld 4000
GPO Box 2454 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7330
Facsimile +61 7 3220 6231
Email environment@ministerial.qld.gov.au

sch4p4(6) Personal informati

Coordinator
Yatala Residence Alliance Committee
PO Box 445
BEENLEIGH QLD 4207

Dear 4(6) Personal inf

Thank you for your letters of 8 March 2015 concerning the request for dust monitoring in the Yatala and Ormeau area, monitoring of bioaerosols at composting and mulching activities in the Yatala area and industry separation distances to be reinstated. I note that you have also written to the Director-General of the Department of Environment and Heritage Protection (EHP) concerning the bioaerosols monitoring and I am pleased to respond on his behalf.

In December 2014, EHP received similar correspondence from members of the Yatala Residents Alliance (YRA) regarding dust from quarrying operations. Specifically, concerns were raised regarding the impact of respirable crystalline silica (and asbestos) on the surrounding community.

I am advised that EHP commenced investigation into the issues raised and subsequently sought technical assistance from the Air Quality Sciences Unit of the Department of Science, Information Technology and Innovation (DSITI). A dust monitoring investigation will be conducted in the Yatala and Ormeau area. This monitoring campaign will be conducted by DSITI and will focus predominately on crystalline silica.

It is anticipated that the investigation will be established over a period of several months representative of the worst possible dust conditions experienced by the community. This will determine whether the crystalline silica dust levels experienced during peak exposure exceed the environmental health standards recommended for community health ($3\mu\text{g}/\text{m}^3$). As such, the installation of monitoring equipment will be scheduled outside of peak rainfall periods and it is anticipated that monitoring will occur between June and October 2015.

With respect to your concerns regarding the dust limits placed within Environmental Authorities, the $25\mu\text{g}/\text{m}^3$ limit you have referred to is for the $\text{PM}_{2.5}$ fraction of dust detected within a 24 hour period and is established in accordance with the Environmental Protection (Air) Policy 2008 (EPP Air). Currently there is no Queensland EPP Air quality objective or national ambient air quality guideline for crystalline silica. The $3\mu\text{g}/\text{m}^3$ for respirable crystalline silica limit you refer to comes from the Victorian Government's Protocol for Environmental Management for Mining and Extractive Industries criterion for crystalline silica, which is based on the Californian Office of Environmental Health Assessment chronic inhalation Reference Exposure Level for the respirable crystalline silica component only, which is measured within the $\text{PM}_{2.5}$ fraction.

As per previous correspondence to the Yatala Residents Alliance, EHP is unable to impose bioaerosol monitoring on the relevant facilities under their current approvals.

EHP has however, also investigated options for conducting screening level bioaerosol monitoring within the Yatala area. The proposed monitoring program will assist in determining the concentrations of bioaerosols and potential risk to sensitive receptors. The viability, timing and duration of this monitoring will be decided after further consultation with DSITI and the Queensland University of Technology (QUT).

The proposed monitoring will provide particulate and bioaerosol ambient air quality concentrations which can be compared against the relevant existing standards. Monitoring at the source and downwind locations will be conducted when emissions are expected to be at maximum rates. The result of this screening level monitoring will be used by EHP to determine potential risk and trigger any future monitoring that may be required.

With regard to your request for industry separation distances to be reinstated, I am advised that local government planning schemes fall within the portfolio responsibilities of the Honourable Ms Jackie Trad MP, Deputy Premier, Minister for Transport, Minister for Infrastructure, Local Government and Planning and Minister for Trade. As such, a copy of your correspondence has been passed on to her with a request that a reply be forwarded to you at the earliest opportunity.

I hope this information is of assistance to you. Should you have any further enquiries, please contact my Chief of Staff, Mr Philip Halton on 3719 7330.

Yours sincerely



DR STEVEN MILES MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

*I have asked to be kept informed personally
of the monitoring program.*

ch4p4(6) Personal informa

Coordinator
Yatala Residence Alliance Committee
PO Box 445
BEENLEIGH QLD 4207

Dear 4(6) Personal in

Thank you for your letter of 8 March 2015 concerning request for dust monitoring in Yatala and Ormeau area.

In December 2014, the Department of Environment and Heritage Protection (EHP) received similar correspondence from members of the Yatala residence Alliance (YRA) regarding dust from quarrying operations. Specifically, concerns were raised regarding the impact of respirable crystalline silica (and asbestos) on surrounding community members.

You are advised that upon receipt of this former correspondence, EHP commenced investigation into the issues raised and subsequently sought technical assistance from the Air Quality Sciences unit of the Department of Science, Information Technology, Innovation and the Arts (DSITIA).

Based on EHP's preliminary investigations and ongoing discussions with DSITIA, state quarry representatives and Cement Concrete and Aggregates Australia (CCAA); it was decided that a dust monitoring investigation was warranted. EHP has since been in communication with DISTIA to establish a monitoring program. The investigation will include a dust monitoring campaign similar to that undertaken for the 2008-2009 Mount Cotton Quarry Dust Investigation and will focus predominantly on respirable crystalline silica.

It is anticipated that the investigation will be established over a period of several months representative of the worst possible dust conditions experienced by the community. This will determine whether the crystalline silica dust levels experienced during peak exposure exceed the environmental health standards recommended for community health ($3\mu\text{g}/\text{m}^3$). As such, the installation of monitoring equipment will be scheduled outside of peak rainfall periods and it is anticipated that monitoring will be established between June and October.

With respect to your concerns regarding the dust limits placed within Environmental Authorities, the $25\mu\text{g}/\text{m}^3$ limit you have referred to is for the $\text{PM}_{2.5}$ fraction of dust detected within a 24 hour period and is established in accordance with the *Environmental Protection (Air) Policy 2008* (EPP Air). Currently there is no Queensland EPP Air quality objective or national ambient air quality guideline for crystalline silica. The $3\mu\text{g}/\text{m}^3$ for respirable crystalline silica limit you refer to comes from the Victorian Government's *Protocol for Environmental Management for Mining and Extractive Industries* criterion for crystalline silica, which is based on the Californian Office of Environmental Health Assessment (OEHHA) chronic inhalation

Reference Exposure Level (REL) for the respirable crystalline silica component only which is measured within the PM_{2.5} fraction.

Regarding your request for the establishment of a permanent air quality monitoring station in the Yatala / Ormeau region, whilst this proposal would likely be supported, it is outside EHP's jurisdiction. The installation and maintenance of air quality monitoring stations throughout the state of Queensland is managed by DSITIA.

I hope this information is of assistance to you. Should you have any further enquiries, please contact my Chief of Staff, Mr Philip Halton on 3719 7330.

Yours sincerely

DR STEVEN MILES MP

**Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef**

Department of Environment and Heritage Protection
MINISTERIAL BRIEFING NOTE

CoS / AdvisorEndorsed
Date/...../.....

SUBJECT: Respirable Crystalline Silica Dust from Ormeau / Yatala Quarry Operations

☐ Approved ☐ Not Approved ☐ Noted ☐ Further information required (see comments)	Minister	Date/...../.....
	Comments:	

RECOMMENDATION

Action Required by: There is no specific timeframe required.

1. It is recommended the Minister:

- **sign** the attached letter to **4(6) Personal info** (YRA Committee); and
- **note** the following information.

BACKGROUND

- Correspondence was received on 11 December 2014 from members of the Yatala Residents Alliance (YRA) with respect to concerns regarding the release of respirable crystalline silica dust (and asbestos, a silicate mineral) from the quarry operations within the Yatala / Ormeau region.
- Based on preliminary investigations undertaken by the Department of Environment and Heritage Protection (EHP), and technical advice sought from the Air Quality Sciences unit of the Department of Science, Information Technology, Innovation and the Arts (DSITIA); an air quality investigation to monitor for crystalline silica with the Ormeau / Yatala region will be established. This monitoring campaign seeks to detect the worst case scenario for dust deposition, including crystalline silica, in order to establish whether crystalline silica dust levels within the community exceed the recommended exposure standards for community health. In order to establish peak community exposure; the monitoring needs to occur outside times of peak rainfall. It is anticipated that the programme will commence in June – October.

ISSUES

- Silica is a naturally compound prevalent throughout the Earth's crust with the potentially harmful form of crystalline silica (free silica) representing only a fraction of the total silica content. However, the quarries located within the Ormeau / Yatala region have a high proportion of crystalline silica (approx. 37%).
- There are currently six significant quarry operations within the Ormeau / Yatala area, all of which generate dust from their operations.
- Repeated and prolonged exposure over many years to relatively high concentrations (or short-term exposure to extremely high concentrations) of crystalline silica can cause silicosis (lung disease).
- Currently there is no Queensland Environmental Protection Policy (EPP) Air quality objective or national ambient air quality guideline for crystalline silica. The Victorian Government's *Protocol for Environmental Management for Mining and Extractive Industries* criterion for crystalline silica is based on the Californian Office of Environmental Health Assessment (OEHHA) chronic inhalation Reference Exposure Level (REL) of 3µg/m³ for respirable crystalline silica, for community exposures (measured in the PM_{2.5} fraction). This limit will be used to establish whether crystalline silica dust poses a risk to the community.

RISKS

- There are no risks associated with this brief.

FINANCIAL IMPLICATIONS

- Funding for the monitoring programme will be sourced from Air Quality Monitoring, DSITIA's base funding arrangements; in addition to staff resourcing from EHP.

CONSULTATION

- EHP Work request issued to Air Quality Sciences (DSITIA) seeking technical advice - 14/01/2015;
- Request Phone discussion with Dr David Wainwright, Air Quality Sciences (DSITIA) - 14/01/2015; and
- Meeting with DSITIA, Cement Concrete and Aggregates Australia (CCAA) and State quarry representatives - 11/02/2015.

COMMUNICATION

- YRA Committee to be kept informed of impending monitoring arrangements and presented with investigation report upon completion.

ATTACHMENTS

Attachment 1. 12 January 2015 Letter to 14p4(6) Personal inform (members of YRA)

Author Name: Zoe Immisch Position: Principal Environmental Officer Tel No: 07 5583 2132 Date Drafted: 25/03/2015	Branch Endorsement Name: [Insert name] Position: [Insert position] Tel No: [Insert telephone no] Date Endorsed: [Insert date]	Division Endorsement Name: [Insert name] Position: [Insert position] Tel No: [Insert telephone no] Date Endorsed: [Insert date]	Director-General Endorsement Name: Jon Black, DG, EHP Tel No: 3330 6298 Signed Date/...../....
--	--	--	--



Hon Dr Steven Miles MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Ref CTS 18624/16

Level 13
400 George Street Brisbane Qld 4000
GPO Box 2454 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7330
Facsimile +61 7 3220 6231
Email environment@ministerial.qld.gov.au

sch4p4(6) Personal informa
Database Coordinator
Yatala Residents Alliance
PO Box 445
BEENLEIGH QLD 4207

sch4p4(6) Personal informati

Dear sch4(6) Personal infc

Thank you for your email of 21 July 2016 concerning my earlier correspondence to you (CT15640/16) dated 20 July 2016.

You are advised that the posting of the abovementioned response on the Yatala Residents Alliance (YRA) website is at your discretion; however you are encouraged to ensure that any matters of concern or complaints pertaining to the operation of environmentally relevant activities (ERAs) continue to be lodged with the Department of Environment and Heritage Protection's (EHP) pollution hotline (1300 130 372). Any environmental nuisance matters not regulated by EHP need to be referred to the relevant local government.

Regarding the asbestos monitoring in the Yatala / Ormeau region, being conducted by the Department of Science, Information Technology and Innovation (DSITI), on behalf of EHP as part of the Crystalline Silica Dust investigation for this region, I thank you for your assistance. At this stage, EHP and DSITI are seeking 3-6 suitable residents to volunteer with the asbestos monitoring. Ideally, these residents need to be located in the 'worst affected areas' (i.e. within those areas that the community consider to be most affected by quarry dust) during the 'worst conditions' (i.e. during increased levels of dust at a residential location) to determine the community's potential health risk. You are invited to help identify suitable volunteers for this monitoring. An EHP or DSITI officer will contact you in the upcoming weeks to discuss the monitoring with you directly. Please be advised that volunteers must be deemed 'suitable' by EHP / DSITI to participate in the monitoring to ensure that monitoring is conducted in an objective manner. As such, any person with a prior record of lodging vexatious complaints or those individuals deemed to have a conflict of interest will not be deemed suitable.

Henceforth, for any matters relating to the crystalline silica dust investigation, asbestos monitoring, or the regulation of ERAs administered by EHP, I strongly encourage you to contact EHP's South Queensland Compliance Gold Coast office (goldcoast.es@ehp.qld.gov.au) to enable a more efficient method of communication between YRA and EHP.

I hope this information has been of assistance to you. Should you have further enquiries, please contact Mr Philip Halton, Chief of Staff in my office on (07) 3719 7330.

Yours sincerely

DR STEVEN MILES MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

EHP RTI DL Release

Departmental Endorsement 18624/16

The information contained in this reply is endorsed by EHP - ESR IaDaSQC
as at [insert date endorsed by DDG].

EHP RTI DL Release



Hon Dr Steven Miles MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Ref CTS 18624/16

Level 13
400 George Street Brisbane Qld 4000
GPO Box 2454 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7330
Facsimile +61 7 3220 6231
Email environment@ministerial.qld.gov.au

sch4p4(6) Personal informat

Database Coordinator
Yatala Residents Alliance
PO Box 445
BEENLEIGH QLD 4207

sch4p4(6) Personal informatio

Dear sch4p4(6) Personal infi

Thank you for your email of 21 July 2016 concerning my earlier correspondence to you (CT15640/16) dated 20 July 2016 regarding environmental monitoring being conducted in the Yatala / Ormeau region.

You are advised that the posting of the abovementioned response on the Yatala Residents Alliance (YRA) website is at your discretion; however you are encouraged to ensure that any matters of concern or complaints pertaining to the operation of environmentally relevant activities (ERAs) continue to be lodged with the Department of Environment and Heritage Protection's (EHP) pollution hotline (1300 130 372). Any environmental nuisance matters not regulated by EHP need to be referred to the relevant local government.

Regarding the asbestos monitoring in the Yatala / Ormeau region, being conducted by the Department of Science, Information Technology and Innovation (DSITI), on behalf of EHP as part of the Crystalline Silica Dust investigation for this region, I thank you for your assistance. At this stage, EHP and DSITI are seeking 3-6 suitable residents to volunteer with the asbestos monitoring. Ideally, these residents need to be located in the 'worst affected areas' (i.e. within those areas that the community consider to be most affected by quarry dust) during the 'worst conditions' (i.e. during increased levels of dust at a residential location) to help determine the community's potential health risk. You are invited to help identify suitable volunteers for this monitoring. An EHP or DSITI officer will contact you in the upcoming weeks to discuss the monitoring with you directly. Please be advised that volunteers must be deemed 'suitable' by EHP / DSITI to participate in the monitoring to ensure that monitoring is conducted in an objective manner. As such, any person with a prior record of lodging vexatious complaints or those individuals deemed to have a conflict of interest will not be deemed suitable.

Henceforth, for any matters relating to the crystalline silica dust investigation, asbestos monitoring, or the regulation of ERAs administered by EHP, I strongly encourage you to contact EHP's South Queensland Compliance Gold Coast office (goldcoast.es@ehp.qld.gov.au) to enable a more efficient method of communication between YRA and EHP.

I hope this information has been of assistance to you. Should you have further enquiries, please contact Mr Philip Halton, Chief of Staff in my office on (07) 3719 7330.

Yours sincerely

DR STEVEN MILES MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

EHP RTI DL Release

Departmental Endorsement 18624/16

The information contained in this reply is endorsed by EHP - ESR IaDaSQC
as at [insert date endorsed by DDG].

EHP RTI DL Release



Deputy Premier
Minister for Transport, Minister for Infrastructure,
Local Government and Planning and Minister for Trade

Our ref: MC15/2967

Level 12 Executive Building
100 George Street
PO Box 15009 City East
Queensland 4002 Australia
Telephone +61 7 3719 7100
Email deputy.premier@ministerial.qld.gov

24 AUG 2015

Mr Campbell Staines
Solicitor
CSM Conveyancing
6/82 City Road
BEENLEIGH QLD 4207

Dear Mr Staines

I refer to your email of 24 February 2015 to the Honourable Annastacia Palaszczuk MP, Premier and Minister for the Arts about the proposed expansion of Wolffdene Quarry. Your correspondence was referred to the Honourable Jackie Trad MP, Deputy Premier, Minister for Transport, Minister for Infrastructure, Local Government and Planning and Minister for Trade for consideration and response. The Deputy Premier has asked that I respond on her behalf.

Please note, on 22 December 2014, the then Department of State Development, Infrastructure and Planning provided its concurrence agency response to the Gold Coast City Council (the Council) as the assessment manager for the development application.

This response was informed by an assessment of the development application against the relevant referral triggers in accordance with Schedule 7 of the *Sustainable Planning Regulation 2009*, including environmentally relevant activities and development impacting on State transport infrastructure.

In relation to the environmentally relevant activities, the State imposed a number of stringent conditions to the proposed quarry operations on the site covering air, water, noise, land, waste and environmental matters. One of the imposed conditions requires the development to be undertaken in a way that ensures odours or airborne contaminants that are noxious or offensive do not cause a nuisance to any sensitive places.

The application is now with the Council for assessment against its planning scheme and it will ultimately make the final decision. It is also important to note that, in addition to the condition imposed through the development assessment process, all operators of environmentally relevant activities must meet their obligations under the *Environmental Protection Act 1994*, including:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440).

Should you have any additional concerns regarding this development application, please contact the Council on 5582 8211 or by email at mail@goldcoast.qld.gov.au.

If you require further information, I encourage you to contact Ms Amanda Tzannes, Manager Planning, Local Government and Regional Services in the Department on 5644 3223 or by email at amanda.tzannes@dilgp.qld.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Matt Collins', written over a circular stamp.

MATT COLLINS
CHIEF OF STAFF

EHP RTI DL Release



Deputy Premier
Minister for Transport, Minister for Infrastructure,
Local Government and Planning and Minister for Trade

Our ref: MC15/4737

17 NOV 2015

Level 12 Executive Building
100 George Street
PO Box 15009 City East
Queensland 4002 Australia
Telephone +61 7 3719 7100
Email deputy.premier@ministerial.qld.gov.au

Mr Campbell Staines
Solicitor
CSM Conveyancing
6/82 City Road
BEENLEIGH QLD 4207

Dear Mr Staines

Thank you for your follow up email of 1 September 2015 to the Honourable Jackie Trad MP, Deputy Premier, Minister for Transport, Minister for Infrastructure, Local Government and Planning and Minister for Trade, about the proposed expansion of Wolffdene Quarry. The Deputy Premier has asked that I respond on her behalf.

As previously advised, the development application for the expansion of the Wolffdene Quarry was referred to the State for assessment in relation to environmentally relevant activities and development impacting on state transport infrastructure matters. Subsequently, on 22 December 2014, a concurrence agency response was issued to the Gold Coast City Council (the Council) which required conditions be imposed to manage the development's impacts.

While your concerns about air quality in relation to the proposed development are noted, the above assessment may only have regard to matters within the State's jurisdiction. Specifically, the assessment is undertaken against the State Development Assessment Provisions, the *South East Queensland Regional Plan 2009-2031* and the State Planning Regulatory Provisions.

You may recall, as previously advised, in relation to the environmentally relevant activities, the State imposed a number of stringent conditions to the proposed quarry operations on the site covering air, water, noise, land, waste and environmental matters. One of the imposed conditions requires the development to be undertaken in a way that ensures odours or airborne contaminants which are noxious or offensive do not cause a nuisance to any sensitive places.

In this instance, the Council is the assessment manager and I am told the Council is yet to make a final decision. This means the Council is responsible for ensuring the application is decided in accordance with the *Sustainable Planning Act 2009*. As the Council is the assessment manager, it would not be appropriate for the Deputy Premier to intervene in or comment on this matter at this time.

However, I am advised the development application was impact assessable, which means it was required to undergo public notification, providing an opportunity for submissions to be lodged. Once the application has been decided by the Council, anyone who submitted a properly made submission during the notification period will be advised of its decision and has the right of appeal to the Planning and Environment Court about the assessment manager's decision.

If you require further information, I encourage you to contact Ms Amanda Tzannes, Manager, Planning, Local Government and Regional Services, in the Department of Infrastructure, Local Government and Planning, on 5644 3223 or by email at amanda.tzannes@dilgp.qld.gov.au.

Yours sincerely

A handwritten signature in dark ink, appearing to be 'Matt Collins', written over a diagonal line that extends from the 'Yours sincerely' text.

MATT COLLINS
CHIEF OF STAFF



Hon Dr Steven Miles MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Ref CTS 15640/16

Level 13
400 George Street Brisbane Qld 4000
GPO Box 2454 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7330
Facsimile +61 7 3220 6231
Email environment@ministerial.qld.gov.au

20 JUL 2016

sch4p4(6) Personal informa

Yatala Residents Alliance
PO Box 445
BEENLEIGH QLD 4207

sch4p4(6) Personal informati

Dear

Thank you for your letter of 16 June 2016 concerning air pollution in the Yatala area.

I can assure you that the Department of Environment and Heritage Protection (EHP) is taking your concerns seriously and is committed to the environmental monitoring underway in the area. EHP has provided me with detailed advice on concerns raised in your letter, as outlined in the enclosed document.

In the event you experience dust and odour nuisance incidents or other non-compliances, I encourage you to report these through EHP's Pollution Hotline on telephone 1300 130 372. EHP takes compliance matters seriously and if non-compliance is verified, appropriate enforcement action will be taken in accordance with EHP's enforcement guidelines.

With respect to your request for the implementation of a 24/7 live monitoring station, as previously advised, air quality monitoring falls under the jurisdiction of the Department of Science, Information Technology and Innovation and the portfolio responsibilities of the Honourable Leeanne Enoch MP, Minister for Innovation, Science and the Digital Economy and Minister for Small Business. I note that you have also written to Minister Enoch.

I hope this information has been of assistance to you. Should you have further enquiries, please contact Mr Philip Halton, Chief of Staff in my office on (07) 3719 7330.

Yours sincerely

DR STEVEN MILES MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Enc.

Advice from the Department of Environment and Heritage Protection (EHP)

National Pollutant Inventory (NPI) Emission Data

The PM_{2.5} (particulate matter 2.5 micrometers or less in diameter) particulate matter data referred to, sourced from the NPI, only includes particulate matter generated from the combustion of fuel in vehicles at the Holcim Beenleigh and Hanson Wolffdene quarries for the 2012/13 reporting period. It does not relate to dust emissions from rock extraction or crushing activities. The PM₁₀ particulate matter data includes particulate matter generated from all activities associated with the quarry operation, including for example, blasting, crushing, materials handling, as well as from fuel combustion from vehicles. As such, the PM₁₀ and PM_{2.5} particulate matter emissions data for these operations cannot be used to calculate the total crystalline silica and asbestos dust emissions from these sites.

Asbestos Dust

Asbestos is the term used to describe a group of naturally occurring minerals whose characteristic feature is that they occur as fibres. Airborne particles (dust) range in size from 0.1µm to 500µm, however human health impacts are typically associated with particles of less than 10µm (PM₁₀), termed 'respirable' as these can enter deep into the lungs. The respirable fraction of dust (less than 10µm) is the mass of inhaled particles penetrating the smallest (non-ciliated) airways of the lungs.

As such, it is important to note that while the rock composition at the Hanson Wolffdene quarry may be estimated at 3% asbestos, only the 'respirable' fraction of liberated asbestos material may pose a health risk.

With respect to concerns regarding the asbestos monitoring anticipated to be conducted as part of the Department of Science, Information Technology and Innovation's (DSITI) investigation, EHP has discussed the pending monitoring with DSITI and was advised that asbestos monitoring is to commence shortly. Asbestos monitoring is non-continuous and requires manual sampling. Due to its non-continuous nature, in order to detect the risk of health impacts from quarry operations, asbestos monitoring needs to be conducted during the most suitable weather conditions for this monitoring, ideally July to September. It is anticipated that EHP and DSITI will seek active community involvement for the asbestos monitoring. The results of the asbestos monitoring will be assessed against the accepted health criteria and provided in DSITI's final report which will be made publicly available upon completion. Should the results of the monitoring show any risk to the community, EHP anticipates that the DSITI investigation will be expanded and where appropriate, action will be taken in accordance with EHP's Enforcement Guidelines.

Crystalline Silica Dust

DSITI is currently conducting an investigation into the levels of respirable crystalline silica dust generated as a result of quarrying activities within the Ormeau / Luscombe area. As concentrations of crystalline silica dust are expected to be highest at the source of emission, the investigation has established two monitoring locations positioned in close proximity to two quarries in the area. While these sites do not represent the 'cumulative impact' from all of the quarries in the area, given their position adjacent to the quarries, these locations were chosen to allow DSITI to determine whether the crystalline silica dust levels experienced in close proximity to the quarry operations exceed the environmental health standards recommended for community health (3µg/m³). It is anticipated that if the environmental health standards are exceeded at these locations within 'close proximity' to the quarries, EHP will seek to have the investigation expanded.

In addition to crystalline silica dust monitoring, continuous PM₁₀ monitoring is conducted at the primary monitoring location in Luscombe. DSITI and EHP are currently in the process of establishing an additional continuous PM₁₀ monitoring device at the secondary monitoring location in Ormeau.

The continuous monitoring data referred to, was uploaded by DSITI on an annual basis. The data is not provided with the intention of establishing a live monitoring station similar to those established as part of DSITI's air monitoring network. Some of the monitoring conducted as part of the crystalline silica dust investigation is not of a continuous nature and is therefore not present in the dataset provided. DSITI has advised that the continuous monitoring data recorded as part of the investigation for January 2016 onwards will be uploaded in 2017. The results of all monitoring conducted as part of the investigation, including crystalline silica dust and asbestos concentrations, will be presented in the final report prepared by DSITI, which will be made publicly available upon completion.

Bio-aerosol Monitoring

The bio-aerosol monitoring program conducted in November 2015 was specifically in response to composting activities in Yatala that are regulated by EHP. The 'green waste shredding operation' referred to, being operated by Powes Haulage Pty Ltd (Powes), is not currently identified as an Environmentally Relevant Activity and therefore is not regulated by EHP. As such, the bio-aerosol monitoring program did not include monitoring of emissions from this operator.

Nuisance matters pertaining to activities of Powes fall under the jurisdiction of the council and it is noted that a copy of the letter has already been sent to the Mayor, Mr Tom Tate. EHP has contacted the council regarding the alleged dust nuisance from Powes and the council advised that a Penalty Infringement Notice (PIN) had previously been issued to the operator in relation to dust nuisance. However the PIN was successfully contested in Court in November 2015.

Any future dust complaints pertaining to the operations of Powes should be made to the council's dust pollution reporting service on telephone 5667 5988.

Odour nuisance

With respect to the Phoenix Power Recyclers Pty Ltd Material Change of Use (MCU) application and the associated conditions placed on EHP's concurrence response (development permit) approved by the Court Order on 7 May 2014, please be advised that these conditions will only become effective once the operator enacts the activity to which the MCU relates. As the operator is yet to enact the activity, these conditions are not yet enforceable. Currently, the operator is conducting its composting activities under its existing approval and relevant conditions, granted in 2007.

The site is currently subject to an Environmental Protection Order (EPO). Requirement 2 of this EPO allows for the operator to install and operate forced aeration to new windrows as an alternative to the construction of a sealed enclosure. In December 2015, EHP inspected and verified the installation of aeration to fresh windrows. The EPO is still in effect and will continue to be subject to compliance assessment.

24/7 Air Quality Monitoring

PM_{2.5} are produced from a wide range of man-made and natural sources including motor vehicle emissions, industrial activities, fires (controlled burns, bushfires, wood stoves), fossil fuel power plants, dust, pollen and sea spray.

Your concerns with respect to the elevated PM_{2.5} concentrations observed on 20 May 2016 at Cannon Hill are acknowledged. Cannon Hill is located approximately 30 kilometres to the north of Yatala and is subject to specific sources of PM_{2.5} different to those sources that are likely to affect the Yatala region. Cannon Hill is also located in an urban environment subject to increased levels of motor vehicle emissions as well as emissions from numerous industrial activities. It is therefore not directly relevant to crystalline silica dust from quarrying activities in the Yatala region.



Hon Dr Steven Miles MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Ref CTS 18624/16

Level 13
400 George Street Brisbane Qld 4000
GPO Box 2454 Brisbane
Queensland 4001 Australia
Telephone +61 7 3719 7330
Facsimile +61 7 3220 6231
Email environment@ministerial.qld.gov.au

23 AUG 2016

sch4p4(6) Personal informa

Database Coordinator
Yatala Residents Alliance
PO Box 445
BEENLEIGH QLD 4207

sch4p4(6) Personal informat

Dear

Thank you for your email of 21 July 2016 concerning my earlier correspondence to you dated 20 July 2016 (CTS 15640/16).

I thank you for your assistance with the asbestos monitoring in the Yatala/Ormeau region as part of the Crystalline Silica Dust investigation. At this stage, the Department of Environment and Heritage Protection (EHP) and the Department of Science, Information Technology and Innovation (DSITI) are seeking three to six suitable locations to establish the asbestos monitoring. Ideally these locations need to be located in the 'worst affected areas' (that is, within those areas that the community consider to be most affected by quarry dust) during the 'worst conditions' (that is, during increased levels of dust at a residential location) to determine the community's potential health risk. You are invited to help identify suitable volunteers for this monitoring. An EHP or DSITI officer will contact you in the coming weeks to discuss the monitoring with you directly.

For any matters relating to the crystalline silica dust investigation, asbestos monitoring or the regulation of environmentally relevant activities (ERAs) administered by EHP, I encourage the Yatala Residents Association (YRA) to contact EHP's Gold Coast office at goldcoast.es@ehp.qld.gov.au.

Also, I am informed by EHP that it has provided advice to you that the posting of EHP's previous response on the YRA website is at your discretion. However, you are encouraged to lodge any matters of concern or complaints regarding any ERAs with EHP's Pollution Hotline on telephone 1300 130 372. Any environmental nuisance matters not regulated by EHP need to be referred to the relevant local government.

I hope this information has been of assistance to you. Should you have further enquiries, please contact Mr Philip Halton, Chief of Staff in my office on (07) 3719 7330.

Yours sincerely

DR STEVEN MILES MP
Minister for Environment and Heritage Protection and
Minister for National Parks and the Great Barrier Reef

Running Sheet Summary

Compliance Activity Ref: CA34210

Client						
Ref	Name	Address	Phone	Mobile	Fax	Email
737770	Ormeau / Yatala Quarries					

Activity Location		
Name	Risk Level	Address
Ormeau / Yatala Quarries		
29-31 Enkleman RD, YATALA 4207		29-31 Enkleman RD YATALA QLD 4207

Source Ref: CA34210

Action Source Ref:

Date Commenced: 11/FEB/15

Officer Involved: IMMISCH, Zoe

Responsible Office: ES-RSD-SER-Gold Coast

Action Type: Meeting

Inspection Type:

Enforcement Measure Type:

Referral To:

Action: CA Carrie don from CR65296. Meeting held with DSITIA, CCAA and quarry reps to discuss the proposed investigation of crystalline silica dust generated from the quarries in the Ormeau / Yatala region.

Time Spent Hours: 1

Time Spent Minutes:

Outcome: Action Required - further investigation

Outcome Description: Awaiting DSITIA investigation proposal

Due Date:

Date Completed:

Source Ref: CA34210

Action Source Ref:

Date Commenced: 25/MAR/15

Officer Involved: IMMISCH, Zoe

Responsible Office: ES-RSD-SER-Gold Coast

Action Type: Brief

Inspection Type:

Enforcement Measure Type:

Referral To:

Action: Brief and ministerial reply issued

Time Spent Hours: 4

Time Spent Minutes:

Outcome: Action Required - further investigation

Outcome Description: EHP and DSITIA investigation to commence mid year 2015

Due Date:

Date Completed:

Running Sheet Summary

Source Ref: CA34210

Action Source Ref:

Date Commenced: 27/APR/15

Officer Involved: IMMISCH, Zoe

Responsible Office: ES-RSD-SER-Gold Coast

Action Type: Meeting

Inspection Type:

Enforcement Measure Type:

Referral To:

Action: Telephone meeting with David Wainwright, AQS DSITIA to discuss impending monitoring programme. DW advised that three monitoring locations would need to be established, one at 4p4(6) Personal info where the FTMS Dicot continuous sampler would be established for a period of 3-4 months. The continuous sampler will monitor PM10, PM2.5 and TSP, dust deposition and crystalline silica. This data will be monitored every 5 minutes and uploaded to the DSITIA website hourly. The second and third locations would utilise partisol samplers and sample for crystalline silica as part of PM2.5 over a 7 day period (sampler would require changing every week. All sites require access o power supply. ZI advised the implementation of security measures for the monitoring locations due to the known occurrence of sabotage with dust monitoring equipment in the Ormeau area. DW will begin drafting the programme, AI to establish contact with complainant to seek approval for monitoring equipment to be placed at their property. The equipment will produce noise from either a pump or A/C unit and therefore locations must have regard to noise nuisance impacts. With respect to sampling for asbestos, preference is to undertake spot sampling during worst case dust scenario. Once the programme is established, EHP and DSITIA can consult with complainants to ensure all concerns have been considered.

Time Spent Hours: 1

Time Spent Minutes:

Outcome: Action Required - further investigation

Outcome Description:

Due Date:

Date Completed:

Subject: Respirable Crystalline Silica dust investigation – monitoring equipment

Date: 16/09/2015

Project reference: CA34210

File Note: Phone discussion between Zoe Immisch (Principal Environmental Officer, South Queensland Compliance, EHP) and [redacted] (p4(6) Personal information) Harts Road, Luscombe (Primary Site)

- ZI queried whether everything was going ok with the monitoring equipment.
- [redacted] advised that the equipment was still running (24-7) and that no red light had appeared on the partisol sampler.
- ZI advised that someone from DSITI would contact him to discuss the electricity reimbursements.

Signature

Author: Zoe Immisch
Position: Principal Environmental Officer
Unit/Office: Environmental Services Gold Coast
Phone: 5583 2132

8/26/2015 9/2/2015 10:56 am

16 349

DUST EQ HARTS

Luscombe

Harts Rd

© 2015 Google
Image © 2015 DigitalGlobe

Google earth



2003

Imagery Date: 7/1/2015 27°47'07.50" S 153°12'27.04" E elev 154 m eye alt 4.41 km

From: sch4p4(6) Personal information
Sent: Monday, 9 March 2015 2:49 PM
To: Environment
Cc: Mark Boothman MP - Member for Albert ; yra@yatala.info
Subject: YRA Dust Monitoring Request Yatala and Ormeau 8th March 2015
Attachments: 1-Request for immediate dust monitoring 30 November 2014.pdf; 2-Request to DEHP for immediate dust monitoring 11 dec 2014.pdf; 3-DEHP response 11 December 2014 complaint ref CR65296.pdf; 4-COMPLIANCE CR65296 150112 AMENDED RESPONSE TO COMPLAINANT.pdf; 5 - YRA Dust Monitoring Request Yatala and Ormeau 8th March 2015.pdf

Dear Minister Miles,

The attached files refer to a **REQUEST FOR DUST MONITORING IN YATALA AND ORMEAU**.

They are self-explanatory and are numbered in chronological order.

As you may never have heard of the Yatala Residents Alliance (YRA), we take the opportunity of introducing ourselves to ensure that there is no misconception as to who we are and what we stand for!

YRA is a group of residents in the area covering Yatala and Ormeau, Queensland – the members names and details are kept private unless they have given permission for their details to be used for some specific reason. YRA is not affiliated with any political party NOR is it funded by any group, GCCC or individual. The YRA Committee (nominated by the members) comprises 5 residents and it is their names that the authorities have been made aware. All information offered by our members is used to help each other, as well as to be a very serious voice of the Yatala / Ormeau residential community addressing the many issues that face the area.

From inception in 2009, YRA has consistently stated that it is **NOT AGAINST INDUSTRY and BUSINESS in the YATALA ENTERPRISE AREA (YEA)** as we all know that jobs in a local area are VITAL for prosperity in that area and for the future of the district.

What YRA does want is that those businesses, that may already be in our area, to comply with their development conditions in relation to amenity, noise and air emissions. We want future companies who are permitted to establish in our area, to be more carefully screened by the responsible authorities to ensure that their activities are compatible when being located in such close proximity to residents. We want assurances from the responsible authorities that those businesses will not create additional adverse impacts to the amenity or health in an area which is encompassed by the Yatala and Ormeau residential communities.

The Mission Statement of YRA is stated below – it really does say it all. For more information the website is: www.yatala.info

In the light of the above, we ask that you take the time to read the documents provided (attachments 1-4) and our response (attachment 5) requesting a Monitoring of Dust emissions in the area.

Yours truly,

p4(6) Personal info– YRA Coordinator on behalf of the YRA Committee and Members

Issued by: p4(6) Personal info– YRA Database Coordinator

Date: 9th March 2015



MISSION STATEMENT: "A Community voice surrounding topics which impact the lifestyle, health and environment of residents near commercial and industrial developments in the Yatala Enterprise Area"

Disclaimer:

No warranty is given as to the accuracy of this information, and persons who rely on it do so at their own risk. To the extent permitted by law, neither Yatala Residents Alliance (YRA) nor its members, employees and agents, is liable for any claim, loss, damage cost or expense sustained or incurred by any person directly or indirectly arising as a result of reliance on an opinion, advice, recommendation, representation of the information expressly or impliedly contained in this document notwithstanding any error or omission including negligence. If you require any further information in relation to this document or it's contents, please contact the YRA committee via email on yra@yatala.info

EHP RTI DL Release

Hon. Dr. Steven Miles
Minister for Environment & Heritage Protection/National Parks & Great Barrier Reef
GPO Box 2454
BRISBANE QLD 4001
Email: environment@ministerial.qld.gov.au

Date: 8th March 2015

Dear Minister Miles,

REQUEST FOR DUST MONITORING INCLUDING THE RESPIRABLE SILICA FRACTION OF PM 2.5 DUST IN YATALA/ORMEAU

The Yatala Residents Alliance (YRA) committee on behalf of all YRA Members, would be most grateful if you would consider our request for the installation of dust monitoring stations in the Yatala and Ormeau region in Queensland.

Currently the National air quality guideline and the Queensland air quality objective sets a limit of $25\mu\text{g}/\text{m}^3$ (25 micro grams per cubic metre) as a limit for PM 2.5 dust emissions from quarries. This limit does not consider any silica content in this dust (**which is far more harmful to human and animal health, causing the lung disease silicosis/cancer and respiratory diseases such as chronic bronchitis**). Please refer to this link which better describes the reason for our concerns:

<http://www.superquarry.org.au/wp-content/uploads/2011/02/Bridge-2009-environmental-silicosis-risk045.pdf>

As we understand it, the acceptable limit for long term exposure to PM 2.5 dust with silica content is $3\mu\text{g}/\text{m}^3$ and our community was astounded that, in a recent Quarry development expansion application in our area, that DEHP (having been presented data by the applicant which showed 37% silica and 3% asbestos content in the rock being mined) had not imposed the $3\mu\text{g}/\text{m}^3$ in their conditions. DEHP accepted 2010 ambient dust level data (with a limit of $25\mu\text{g}/\text{m}^3$) from Springwood, a suburb which is some 15km North West of Yatala!

The link for the Springwood air monitoring station is available online and results are updated hourly.
http://www.ehp.qld.gov.au/air/data/search.php?day=24&month=11&year=2014&hour=04&category_id=1&mode=measurement&goto=Latest+hour

As we understand this table, if the levels in the second last column to the right under the heading "Particle PM2.5" $\mu\text{g}/\text{m}^3$ were in excess of $9\mu\text{g}/\text{m}^3$, this particular table would indicate an acceptable result as it is comparing levels against $25\mu\text{g}/\text{m}^3$. However, if this same result was taken in Yatala or Ormeau downwind from the quarries, it would in effect indicate $9\mu\text{g}/\text{m}^3 \times 37\% = 3.33\mu\text{g}/\text{m}^3$ for **silica** content, which is in excess of the allowable limit.

Why did DEHP not ask for readily available, up-to-date information rather than accepting 3-4 year old information?

The 3ug/m³ limit tests for silica in PM 2.5 dust were carried out for the Mt Cotton quarry several years ago. That quarry, which was considered a super quarry, had a claimed output of some 500,000 tonnes. The combined output of the quarries in our area is over 5 million tonnes (**10 times that amount**) and most of the rock crushing is done in the open. As such, we feel there is a great need for the downwind community to be protected from potentially excessive and life threatening dust emissions.

The DEHP have already indicated that some tests will be carried out and all earlier correspondence information is being presented in numbered chronological order in the attachments.

We note that Asbestos/Actinolite is a known carcinogen and to our knowledge there are **no** safe exposure levels. The community does not need or want to hear just that DEHP have imposed strict emission conditions on the quarry operators. The community expects that tests are carried out by the DSTIA or DEHP to **verify** that levels are indeed safe.

However, irrespective of their initial results, due to the huge quarrying activity in our area, and the fact that crushing is not conducted in enclosed buildings in all instances but one, we respectfully insist that permanent monitoring is installed in our region as quickly as possible and that it be capable of detecting the silica and asbestos levels.

Yours truly

YRA Committee

h4p4(6) Personal inform

On behalf of all YRA Members

COPY: Mr Mark Boothman MP – Member for Albert

Email: Albert@parliament.qld.gov.au

Attachments-previous correspondence in numbered chronological order:

- 1 30.11.2014 - Request for immediate dust monitoring 30 Nov 2014 pdf
- 2 11.12.2014 - Request for immediate dust monitoring to DEHP 11 Dec 2014 pdf
- 3 11.12.2014 - DEHP response 11 Dec 2014 complaint ref: CR65296 pdf
- 4 12.1.2015 - Compliance CR65296 150112 Amended response to complainant.



MISSION STATEMENT: "A Community voice surrounding topics which impact the lifestyle, health and environment of residents near commercial and industrial developments in the Yatala Enterprise Area"

Disclaimer:

No warranty is given as to the accuracy of this information, and persons who rely on it do so at their own risk. To the extent permitted by law, neither Yatala Residents Alliance (YRA) nor its members, employees and agents, is liable for any claim, loss, damage cost or expense sustained or incurred by any person directly or indirectly arising as a result of reliance on an opinion, advice, recommendation, representation of the information expressly or impliedly contained in this document notwithstanding any error or omission including negligence. If you require any further information in relation to this document or its contents, please contact the YRA committee via email on yra@yatala.info

From: sch4p4(6) Personal informatio

Sent: Sunday, 30 November 2014 12:44:29 PM

To: Donna Gates (dgates@goldcoast.qld.gov.au); Mark Boothman
(albert@parliament.qld.gov.au)

Cc: Bert Van Manen (bert.vanmanen.mp@aph.gov.au)

Outlook.com [Active View](#)

3 attachments (total 2.0 MB)

- [View online](#)
- [Play](#)
- [View in Slideshow](#)
- [Add to OneDrive](#)
- [Download](#)

[View slide show \(3\)](#)

[Download all as zip](#)

[Add all to OneDrive](#)

Dear Councillor Gates and Mr Boothman

I have just recently been made aware that a rock sample taken from the Hanson Quarry has been analysed to contain 37% Silica and 3% Asbestos.

I am extremely concerned that our health may be at risk, as you both well know that we have several other quarries in our immediate area and that those quarries most probably have the same type of rock with similar or higher silica and asbestos compositions.

I believe that the Hanson Quarry is one of the few quarries in our area that does it's rock crushing in an enclosed building yet even then as you can see from the photos I sent you in 2008(refer attachments and email below), that considerable dust emanates from that quarry and this dust is in turn deposited downwind into surrounding suburbs.

Since I have become aware of the Hanson MCU201300734 and forwarded my submission (which I have copied to yourselves previously) I did a little more research and have noted that the Queensland Government undertook extensive tests (2008-2009) at Mt Cotton Quarry for the PM 2.5 proportion of respirable crystalline silica to ensure that the community was not exposed to excessive levels. The Mt Cotton Quarry had a claimed output of some 500,000 tonnes and was at the time described as a super quarry.

From information gathered in the Hanson MCU documentation I believe that the total output from the quarries in our area is some 5 million tonnes i.e. 10 times the output from Mt Cotton (this would effectively make our quarries Ultra Super Quarries), more worrying still, I believe that most of those quarries do not do their crushing in an enclosed building therefore the dust is released into the surrounding communities unfiltered.

I ask that as a side issue unrelated to the Hanson application which may take some time to resolve, that you both request on our behalf for tests to be conducted immediately in the Yatala and Ormeau downwind locations for levels of PM 2.5 respirable silica and asbestos. Additionally I ask that you both request for our State Government to legislate that all quarries located near suburban or populated areas, do their crushing in enclosed buildings and that their emissions are continuously monitored.

Regards

p4(6) Personal info

From: sch4p4(6) Personal informatio

Sent: Thursday, 11 December 2014 5:43:50 PM

To: Brett.Glosko@ehp.qld.gov.au (brett.glosko@ehp.qld.gov.au);
PollutionHotline@ehp.qld.gov.au (pollutionhotline@ehp.qld.gov.au)

Cc: Donna Gates (dgates@goldcoast.qld.gov.au); Mark Boothman
(albert@parliament.qld.gov.au)

Outlook.com [Active View](#)

3 attachments (total 2.1 MB)

- [View online](#)
- [Play](#)
- [View in Slideshow](#)
- [Add to OneDrive](#)
- [Download](#)

[View slide show \(3\)](#)

[Download all as zip](#)

[Add all to OneDrive](#)

Att: Mr Brett Glosko

Dear Mr Glosko

I refer to my email below to Councillor Gates and Mr Boothman dated 30 November 2014.

I also refer to Councillor Gates's response below dated 11 December 2014.

As per Councillor Gates's advice, I was already aware that this falls under the jurisdiction of the DEHP, however I felt that what I was requesting would be more achievable with Councillor Gates's and Mr Boothman's help.

You will appreciate from an earlier email to Councillor Gates (also below for your reference, including photos taken in 2008) dated 18 October 2008 that quarry dust has been a concern for several years. This concern has been greatly amplified since I became aware of the Hanson MCU application for the expansion of their operation, of particular worry is the revelation that the rock being extracted by the quarries in the Darlington Ranges contains 37% silica and 3% asbestos (assumption based on Hanson rock sample analysis) and that the other quarries unlike Hanson do their crushing in the open.

I ask that as a matter of urgency that your department undertake immediate constant monitoring of dust emissions downwind from all the quarries in our area particularly for the PM 2.5 respirable silica fraction and the asbestos component which I believe is even more harmful when inhaled. I also ask that this information is made readily available online in a similar way to what is currently available for Springwood and many other suburbs around Brisbane.

Please note: Although this is a personal request, I intend to share your reply in full with my fellow residents.

I look forward to your prompt reply.

Regards

p4(6) Personal info

EHP RTI DL Release

From: **GLOSKO Brett** (Brett.Glosko@ehp.qld.gov.au)

Sent: Thursday, 11 December 2014 6:50:39 PM

To: sch4p4(6) Personal informat

Donna Gates (dgates@goldcoast.qld.gov.au); Mark Boothman

(albert@parliament.qld.gov.au); Bert Van Manen (bert.vanmanen.mp@aph.gov.au); INONDA

Cc: William (William.Inonda@ehp.qld.gov.au); ESR - Gold Coast (GoldCoast.ES@ehp.qld.gov.au);

IMMISCH Zoe (Zoe.Immisch@ehp.qld.gov.au); Pollution Hotline

(PollutionHotline@ehp.qld.gov.au)

Dear [6) Personal i

Thank you for your e-mail.

The department registered your concern raised with Councillor Gates and MP Boothman dated 30 November on the same date. The compliant reference number is: CR65296

The instruction provided to the Compliance Officer assigned was to contact the Department of Science, Information Technology, Innovation and the Arts (DSITIA) - Air Sciences section, to request further advice and support to determine is validity of the health concerns raised.

The concern you raise has been somewhat common for residents living within proximity to quarries throughout Queensland, and DSITIA have been activity involved in investigating these concerns. DSITIA have specialist knowledge, expertise and equipment to determine the level of risk posed by such activities.

Additionally, quarry sites have conditions of approval that restrict the release of dust and particulate matter beyond the boundary, and stipulate appropriate monitoring requirements in the event of either a complaint or as requested by the administering authority. The department continues to monitor operator performance via an evolving risk based site inspection program, however can target specific sites outside of this program if alerted to community concerns. As always, I encourage you and any other member of the community to contact the department as soon as possible should you become aware of an incident, or have concerns about the operation of a regulated site.

The department's Pollution Hotline is monitored 24 hours a day, seven days a week, and the department maintains a roster of on-call officers outside of normal business hours. The telephone number for the Pollution Hotline is: 1300 130 372

In regards to the online air monitoring in and around Brisbane, this is not under the control of DEHP.

<http://www.qld.gov.au/environment/pollution/monitoring/air/>

I will ask my officer to obtain further information regarding this network and the entity responsible for the network prior to contacting you.

An officer will contact you soon to discuss this matter further.

Brett Glosko
Compliance Delivery Manager

South Queensland Compliance

Gold Coast, Scenic Rim & Redlands

Environmental Services and Regulation

Department of Environment and Heritage Protection

Telephone: 07 55832140

Visit us online at www.ehp.qld.gov.au

EHP RTI DL Release



Department of
Environment and
Heritage Protection

Enquiries Zoe Immisch
Telephone (07) 5583 2132
Our reference CR65296

sch4p4(6) Personal informatio

12 January 2015

Dear sch4p4(6) Personal infor

Re: Respirable Crystalline Silica Dust Monitoring

I refer to your email correspondence to the Department of Environment and Heritage Protection (the department) on 11 December 2014, regarding dust from quarrying operations. Specifically, you have raised concerns regarding the impact of respirable crystalline silica (and asbestos, a silicate mineral) on surrounding community members.

In response to the matters you have raised, the department has initiated a preliminary investigation to assess the likelihood of environmental risk from the quarry operations in the Ormeau / Yatala region with respect to the release of respirable crystalline silica dust. As part of the investigation, the department has requested that all significant quarry operations in the area submit their dust deposition monitoring results for the preceding two years and petrographic reports for review.

In addition, the department has sought comment from the Air Quality Sciences unit of the Department of Science, Information Technology, Innovation and the Arts (DSITIA) on the matter. As you are aware, DSITIA performed the 2008-2009 quarry dust investigation at Mount Cotton.

Following the submission and review of the abovementioned data, the department will assess the requirement for more specific dust monitoring pertaining to the release of respirable crystalline silica. In the interim, the department offers you the following information for your perusal.

Silica and silicate compounds comprise a significant proportion of the earth's crust, however the potentially harmful form of crystalline silica (free silica) represents only a fraction of the total silica content within rock formations. The three most common forms of crystalline silica are Quartz,

Cristobalite and Tridymite. The potential health impacts from crystalline silica depend on particle size (and shape). Airborne particles (dust) range in size from 0.1µm to 500µm, however human health impacts are typically associated with particles of less than 10µm (PM₁₀).

Particles that can enter deep into the lungs are termed 'respirable'. These particles are often too fine to see unless specific lighting conditions occur. The respirable fraction of dust (less than 10µm) is the mass of inhaled particles penetrating the smallest (non-ciliated) airways of the lungs. Repeated and prolonged exposure over many years to relatively high concentrations (or short-term exposure to extremely high concentrations) of crystalline silica can cause silicosis (lung disease). Recent scientific studies suggest that chronic levels of silica-containing mineral dust that do not cause silicosis, may still cause development of chronic bronchitis, emphysema and small airways disease.

The exposure of quarry workers to potentially harmful levels of respirable crystalline silica is regulated by the Department of Natural Resources and Mines through the *Mining and Quarrying Safety and Health Regulation 2001*. Currently, the national occupational exposure standards for the three most common forms of respirable crystalline silica; Cristobalite (CAS 14464-46-1), Quartz (14808-60-7 and Tridymite (15468-32-3) are set at 0.1mg/m³ as a time weighted average for an 8 hour day, 5 days per week.

Currently there is no Queensland EPP Air quality objective or national ambient air quality guideline for crystalline silica. The Victorian Government's *Protocol for Environmental Management for Mining and Extractive Industries* criterion for crystalline silica is based on the Californian Office of Environmental Health Assessment (OEHHA) chronic inhalation Reference Exposure Level (REL) of 3µg/m³ for respirable crystalline silica, for community exposures (measured in the PM_{2.5} fraction). This was the value used to assess the risk of community exposure for the Mount Cotton investigation. The investigation concluded that the annual average PM_{2.5} crystalline silica concentrations in the Mount Cotton community were very low, less than ten per cent of the guideline value of 3µg/m³.

The release of crystalline silica dust from quarrying operations in the Ormeau / Yatala region is not unexpected. The geological composition of the Neranleigh-Fernvale beds in which these quarries exist, consist of regionally metamorphosed sedimentary and volcanic rocks containing siliceous compounds. Dusts from quarrying may contain silica in both crystalline and non-crystalline forms, however it is critical to note that exposure only to the 'respirable' crystalline silica fraction (<10µm) poses the health risks discussed above.

The health risks associated with respirable crystalline silica are at maximum levels at the source of dust generation. It can therefore be assumed that where the national occupational exposure standards are being complied with, the exposure to the general community would be very low and unlikely to pose a health risk. However due to the complex arrangement of quarries in the region, further departmental investigation is intended to verify that this is the case.

The emissions to air, land and water from the quarrying activities are regulated by the department

as Environmentally Relevant Activities under conditions of Environmental Authorities issued in accordance with the *Environmental Protection Act 1994*. The department sets standard conditions for quarries regarding dust emissions, including nuisance dust emissions and dust emissions potentially affecting human health. Quarry dust emissions are managed through various technologies and management practices adopted on site. Typically, the department do not prescribe *how* quarries must control their dust emissions; however they do prescribe dust deposition limits that must be complied with. Quarries must monitor air quality at the direction of the department, in addition to workplace monitoring conducted in accordance with Workplace Health and Safety requirements under the *Mining and Quarrying Safety and Health Regulation 2001*.

With regards to long-term ambient air quality monitoring, this is a service provided by the Air Quality Science unit of DSITIA who have established 13 air quality monitoring stations throughout Queensland. The closest monitoring station to the Ormeau / Yatala region is located at Springwood, with PM₁₀ and PM_{2.5} data collected and made publicly available via the DSITIA website. For more information regarding the air quality monitoring network please contact the DSITIA Air Sciences Unit at GPO Box 5078, Brisbane Qld 4001 or visit the Air Quality website at <http://www.qld.gov.au/environment/pollution/monitoring/air/>. Pending the outcome of the department's preliminary investigations, where warranted, the department may consider the establishment of monitoring equipment to determine the specific levels of respirable crystalline silica from the quarry operations in the Ormeau / Yatala region.

As discussed above, the department will continue their investigation and you will be advised of any outcomes. Should you require any further information please feel free to contact Principal Environmental Officer Zoe Immisch on (07) 5583 2132 or email zoe.immisch@ehp.qld.gov.au.

Yours sincerely,

sch4p4(6) Personal informatio

12-1-15

William Inonda
A/Compliance Delivery Manager
South Queensland Compliance
Gold Coast, Scenic Rim & Redlands
Environmental Services and Regulation
Department of Environment and Heritage Protection

Notes:

Qhealth Doc

- Silica and silicates make up 90% of the earth's crust. Crystalline silica (free silica) can produce harmful effects; however in most rocks, crystalline silica only makes up a fraction of the total silica content. Three most common forms of crystalline silica is Quartz, Cristobalite and Tridymite.
- Repeated and prolonged exposure over many years to relatively high concentrations (or short-term to extremely high concentration) of crystalline silica can cause silicosis (lung disease).
- Exposure to potentially harmful levels of crystalline silica is a hazard for some occupations such as quarrying; the exposure to the general community is typically very low.
- National exposure standards have been set at levels which should not affect health of nearby workers who work an 8 hour day / 5 days per week for a working lifetime:
 - o Quartz 0.2mg/m³ (now 0.1)
 - o Cristobalite 0.1mg/m³
 - o Tridymite 0.1mg/m³
- National Exposure Standards – currently under review? Previously 0.1mg/m³ (100ug/m³) TWA for crystalline silica.

Safe environments www

- Particles under 16um (respirable fraction) can lodge into inner lining of lungs.
- The Australian occupational exposure standards for respirable crystalline silica as Cristobalite (CAS 14464-46-1), Quartz (14808-60-7 and Tridymite (15468-32-3) are set at 0.1mg/m³ as a time weighted average for an 8 hour day, 5 days per week. – see Safe Work Australia Hazardous Substances Information System.

Hanson Quarry – Petrographic report:

- Aggregate contains 37% free silica content (10% of which is strained quartz). Note that this does not mean that 37% is respirable.

EPA Victoria protocol for environmental management: mining and extractive industries:

- Dust from quarrying operations can be expected to contain silica and can be released through crushers, processing operations, haul roads, earth moving and other plant operations.

- The responsibility lies with the generators of air emissions to identify and undertake appropriate air emissions control and management initiatives. And to demonstrate best practice
- Assessment criteria: respirable crystalline silica 3ug/m³.
- Asbestos 0.2ug/m³ annual average.
- These limits developed on the protection of human health.

Mining and Quarrying Safety and Health Regulation 2001

- General exposure limit for hazard – crystalline silica – 0.1mg/m³.

An Assessment of Exposure – study

- median maximum physical diameter (particle size distribution) = 3.9ug (AS = 4.25ug)
- **Data demonstrates that loss of lung function still occurs from exposures to RCS (respirable crystalline silica) at the safe work occupational exposure limit of 0.1mg/m³.**

Based on petrographic reports from the Hanson Woldene Quarry, the rock contains 37% free silica;

AIOH doc:

- The particles that can enter deep into the lungs are called 'respirable' and thoracic dust. These particles are often too fine to see unless specific lighting conditions occur. The thoracic fraction (less than 25ug) is the mass fraction that can penetrate beyond the larynx; the respirable fraction (less than 10ug) is the mass of inhaled particles penetrating the smallest (non-ciliated) airways of the lungs.
- Evidence suggests that chronic levels of silica-containing mineral dust that do not cause silicosis, may still cause development of chronic bronchitis, emphysema and small airways disease.
- Dust suppression methods adopted to reduce dust generation include water sprays / mists, good house keeping (road spraying), hosing, internalising processing.

Occupational Exposure paper –

According to the National Occupational Health and Safety Commission Exposure Standards for Atmospheric Contaminants in the Occupational Environment (NOHSC 3008, NOHSC 1003: 1995), exposure standards, "according to current knowledge, should neither impair the health of nor cause undue discomfort to nearly all workers" (NOHSC 1995 p4). The current Australian Safety Compensation Commission exposure standard for the most common form of crystalline silica is 0.1 mg/m³ (measured as respirable crystalline silica). In a review of causes of silicosis (Health and Safety Executive 2002), it was acknowledged that exposure to crystalline silica at concentrations below 0.1 mg m⁻³ over a long period could lead to silicosis.).

Monitoring – dust deposition

Dust nuisance from quarries is managed through Quarries routinely undertake dust deposition monitoringto comply with departmental 120...these limits are base don.....

With respect to PM₁₀ and PM_{2.5}....?

Hanson Wolfdene

Mt Cotton Report:

The emissions to air, land and water from the quarrying activities in the Mount Cotton area are regulated by the Department of Environment and Heritage Protection (DEHP) as Environmentally Relevant Activities under conditions of development approvals issued in accordance with the *Environmental Protection Act 1994*. The DEHP sets standard development approval conditions for quarries regarding dust emissions, including nuisance dust emissions and dust emissions potentially affecting human health. Specifically, the approvals require dust or other particulate matter generated from the quarrying activities to not cause a nuisance at a nuisance sensitive place such as a school, child care facility or domestic residence. The quarries must monitor air quality at the direction of the DEHP and/or when complaints are received. The quarries also monitor air quality at the workplace in order to meet Workplace Health and Safety requirements.

In response to residents' concerns, the Queensland Government conducted an initial one-month dust monitoring program in the Mount Cotton community between 3 March and 7 April 2008. Monthly dustfall, 24-hour PM₁₀ and 24-hour PM₁₀ crystalline silica levels were measured at four community sites within five kilometres of quarrying operations. This monitoring program showed that quarrying operations did not result in ambient dust and crystalline silica levels above relevant nuisance and health criteria in the surrounding Mount Cotton community. From the monitoring results, Queensland Health formed the view that the Mount Cotton community was unlikely to have suffered any adverse health effects from PM₁₀ dust and respirable crystalline silica generated from

- quarrying activities in the Mount Cotton area.

Zoe response:

The emissions to air, land and water from the quarrying activities in the Mount Cotton area are regulated by the Department of Environment and Heritage Protection (DEHP) as Environmentally Relevant Activities under conditions of development approvals issued in accordance with the *Environmental Protection Act 1994*. The DEHP sets standard environmental authority conditions for quarries regarding dust emissions, including nuisance dust emissions and dust emissions potentially affecting human health. Specifically, the approvals require dust or other particulate matter generated from the quarrying activities to not cause a nuisance at a nuisance sensitive place such as a school, child care facility or domestic residence. The quarries must monitor air quality at the direction of the DEHP and/or when complaints are received. The quarries also monitor air quality at the workplace in order to meet Workplace Health and Safety requirements under the *Mining and Quarrying Safety and Health Regulation 2001*.