



GCG Ref No. N/A

NSW Resources Regulator

Date 17/05/2021

To whom it may concern,

Re: GCG's Response to Public Consultation – Statutory Review of the WHS (Mines & Petroleum) Act 2013 & Regulation (NSW).

1) Introduction

We wish to acknowledge the hard work put into the review and put forward this submission on behalf of Green Consulting Group PTY LTD (t/a GCG health safety & hygiene) via email to rr.feedback@planning.nsw.gov.au.

In the context of the current review, we would like to contribute our expertise and knowledge to aspects of the review that relate to our service offering to the coal mining industry.

This is a partial response, strictly related to the below areas of expertise:

1. Occupational Hygiene

Feedback external to our expertise has not been provided.

2) GCG's Expertise & Knowledge

GCG health safety & hygiene (GCG) are a privately owned WHS consultancy, specialising in Occupational Hygiene. Founded in 2005, we have over 75 personnel operating out of 5 offices (Maitland, Brisbane, Moranbah, Townsville & Perth) as well as satellite offices in Emerald, Canberra, Hobart and Busselton. Our clients are primarily national and international companies in the resources, services, construction, government, aerospace, and water and energy industries.

GCG takes more than 15,000 personal respirable dust samples annually and is the largest provider of respirable coal dust sampling to the Australian Coal Mining sector.

GCG currently holds a *License for Sampling and Analysing Airborne Dust* in accordance with clause 156 of the (NSW) *Work Health and Safety (Mines & Petroleum Sites) Regulation 2014*.

We are proud to employ (6) Certified Occupational Hygienists (COH)®, which is the highest technical accreditation offered by our peak professional body, the Australian Institute of Occupational Hygienists (AIOH) and an internationally recognised professional qualification.

Our people are trained in best practice and Australian standard requirements for monitoring airborne dusts. This is achieved through the guidance of our personnel by qualified Occupational Hygienists. Our accredited processes have strict requirements, which are third-party audited by the National Association of Testing Authorities, Australia (NATA).

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3) GCG's Submission

Please see below response relating to three (3) of the questions raised by the Resources Regulator:

Feedback Form - Question 11

Resource Regulator Question *Should Schedule 6 of the WHS (MPS) Regulation be amended to include sampling over 80% of a shift, require all respirable dust samples tested for silica, and include more detail on sampling of the drill and blast area, as well as areas involving mobile equipment and maintenance, coal handling preparation and mobile crushing plant?*

GCG Summary Response

- 1) **Endorsed** :
 - a) Require all respirable dust samples tested for silica.
- 2) **Endorsed, with proposed amendment** :
 - a) 80% of shift sampling.
- 3) **Not endorsed** :
 - a) More detail on sampling of the drill and blast area, as well as areas involving mobile equipment and maintenance, coal handling preparation and mobile crushing plan.

GCG Additional Technical Information

2a – There is no evidence in the peer-reviewed or grey literature from any government agency (ie NIOSH, MSHA, HSE) or research institute forming the basis for sampling >80% shifts. Work by INRS (France) demonstrated that the extent of exposure assessment bias by sampling durations less than full shift (100%) is partially dependent on the statistical method by which compliance is determined and not solely on sampling duration. One omission in the overall regulatory proposal is the means by which exposures within these work groups are statistically assessed for compliance.

The Australian Standard referenced for sampling respirable dust¹ recommends the sample be 'representative of the working periods ...' and 'generally not less than 4 hours'. Although sampling >80% is a requirement within some other state based instruments, it is explicitly linked to the requirement of a competent reviewing Occupational Hygienist, such as a Certified Occupational Hygienist. The current or proposed NSW Regulations do not have such a requirement.

3a – GCG are not aware of a technical review of historical personal exposure monitoring data using reputable means as the basis of this determination for these specific areas. To endorse this, GCG would require further information regarding the basis of this recommendation.

GCG are aware of additional work groups (SEGs) in the coal sector that have an unacceptable level of risk, which may also require inclusion. Critically however, this compliance driven approach assumes consistent work practices, and subsequent worker exposures, across the sector. GCG have not observed this effect and table this as a significant flaw in the approach.

Additionally, a minimum compliance approach arguably drives duty holders to comply with the minimum requirements, with less of a focus on evaluating risks. This can be illustrated by comparing the number of personal respirable dust samples per coal mine worker (CMW) between NSW's compliance based sampling approach and QLD's risk based sampling approach. In 2019, using freely available information, GCG estimate that NSW took approximately **0.11 samples/CMW**, with QLD taking **0.29 samples/CMW**. GCG believe that NSW mines taking approximately one third of the number of samples in comparison to QLD

¹ Australian Standard. Workplace atmospheres – Method for sampling and gravimetric determination of respirable dust – AS 2985 (2009).
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mines is largely attributable to the minimum compliance approach mandated in NSW.

GCG agree that the scope of minimum sampling requirements needs to be extended, as it is not commensurate to the risk to worker health. The existing requirements are also deficient in assessing other potential airborne contaminants, such as carcinogenic diesel exhaust emissions, gases, vapours, welding fume and thoracic dust.

The existing Airborne Contaminants Principal Hazard Management Plan (PHMP) approach is a suitable vehicle to establish and document a bespoke risk-based sampling plan for each site. This approach is in keeping with limiting the regulatory burden and complexity for duty holders. As a layer of technical oversight and rigour on the sampling plan, the Resources Regulator should require oversight by a qualified Occupational Hygienist. COH's are recognised in other state based instruments and are the peak technical status in Australia.

GCG Proposal
(refer corresponding
reference number
above)

2a – amended requirement: Personal exposure monitoring is to be a representative duration of the working period. For guidance a duration of >80% of the shift worked is preferable, but not less than 4 hours, with the requirement for a reviewing Certified Occupational Hygienist (COH) on the sampling program.

3a – new requirement: Each site shall review airborne risks to worker health and document an annual risk-based sampling plan within the sites principal hazard management plan (PHMP). This sampling plan must be reviewed and endorsed by a Certified Occupational Hygienists (COH), then submitted to the Resources Regulator.

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Feedback Form - Question 12

Resource Regulator Question	<i>Should the WHS (MPS) Regulation be amended to require sampling and analysis of respirable quartz at non-coal mines, similar to the requirements in clause 86 and Schedule 6?</i>
GCG Summary Response	<p>1) Endorsed : nil</p> <p>2) Endorsed, with proposed amendment : nil</p> <p>3) Not endorsed :</p> <p>a) <i>Regulation amended to require sampling of respirable quartz at non-coal mines, similar to clause 86 and Schedule 6.</i></p>
GCG Additional Technical Information	<p>3a – GCG strongly disagree with the potential adoption of Schedule 6 to non-coal mines, principally since this approach is not proportional to the risk for mine & quarry workers.</p> <p>The minimum sample numbers specified in Schedule 6 are not in alignment with any contemporary method for determining sample numbers for at risk populations. The approach in Schedule 6 does not consider other potential health hazards that may also result in significant irreversible health effects to workers.</p> <p>The approach specified in Schedule 6 also implies a level of consistency in risk to worker health between sites and workgroups (SEGs). GCG have not observed this effect within the coal sector. In comparison to coal data, GCG’s non-coal data indicates a more significant variation in worker exposures. As an isolated example, the proportion of crystalline silica in host rock is vastly different between coal and non-coal mines. This discrepancy may pose significant hazards to workers in what are traditionally considered to be low risk SEGs such as domestic cleaners or administration. Without a risk-based site assessment these exposures may go unnoticed in the proposed Schedule 6 approach.</p> <p>Additionally, a minimum compliance approach arguably drives duty holders to comply with the minimum requirements with less of a focus on critically evaluating risks. This can be illustrated by comparing the number of personal respirable dust samples per coal mine worker (CMW) between NSW’s compliance based sampling approach and QLD’s risk based sampling approach. In 2019, using freely available information, GCG estimate that NSW took approximately 0.11 samples/CMW, with QLD taking 0.29 samples/CMW. As a result, NSW mines are taking approximately one third the number of samples in comparison to QLD mines.</p> <p>GCG agree that the scope of minimum sampling requirements needs to be extended, as it is not commensurate to the risk to worker health. The existing approach is also deficient in assessing other exposure risks, such as diesel exhaust emissions, gases, vapours, welding fume and thoracic dust.</p> <p>The existing Airborne Contaminant Principal Hazard Management Plan (PHMP) approach is a suitable vehicle to achieve establish a bespoke risk based sampling plan for each site. This approach is in keeping with limiting the regulatory burden and complexity for duty holders. As a layer of technical oversight and rigour on the sampling plan, the Resources Regulator should require oversight from a qualified Occupational Hygienist. COH’s are recognised in other state based instruments and are the peak technical status in Australia.</p>
GCG Proposal (refer corresponding reference number above)	1a – new requirement: each site shall review risks to worker health and document an annual risk based sampling plan within the sites principal hazard management plan (PHMP). This sampling plan must be reviewed and endorsed by a Certified Occupational Hygienists (COH), then submitted to the Resources Regulator.

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Feedback Form - Question 26

Resource Regulator Question *Do you agree with amending 128(5) of the WHS (MPS) Regulation to make exceedances of diesel particulate matter and substances and mixtures specified in clause 50 of the WHS Regulation a high potential incident?*

GCG Summary Response

- 1) **Endorsed** : nil
- 2) **Endorsed, with proposed amendment** : nil
- 3) **Not endorsed** :
 - a) Amending 128(5) to include DPM and substances in clause 50.

GCG Additional Technical Information **3a** – Fundamentally, exceedances are not always representative of an unacceptable level of risk to worker health. Even within a well controlled similar exposure group (SEG), should the mine sample a worker from that SEG every day, it is reasonable to expect at least one exceedance be recorded within that calendar year.

GCG are of the opinion that increasing the severity of regulatory requirements for exceedances is counter productive to identifying and managing risks to workers. In response to this approach in other jurisdictions in Australia, GCG have observed the behaviour of **managing the measurement, instead of managing the exposure**. That being, duty holders seek to minimise the number of exceedances, rather than focus on reducing risk. GCG expect that may be achieved through a potential combination of behaviours:

- *Inadequate prioritisation of control* : i.e. only intervene to reduce exposures when exceedances present, not when exposure monitoring data for a SEG indicates an unacceptable level of risk (ie MVUE >50% WES).
- *Restrict sample plans to minimum compliance samples only* : i.e. the chances of detecting an exceedance is proportionate to the number of samples taken. Duty holders may choose to limit the risk of measuring an exceedance by collecting an inadequate number of samples.
- *Tampering with sampling* : i.e. altering conditions on the day of sampling, which may artificially lower the sampling result.

In regards to extending the substances and mixtures to those specified in Clause 50, two (2) major issues are tabled:

- i) *Low consequence hazards* : As understood by GCG, Clause 50 enlists all workplace exposure standards from Safe Work Australia. This is an extensive list with more than 700 chemicals. Exposure standards relating to health effects for these chemicals are based on a range of outcomes from subclinical changes in biochemistry or cellular responses, through transient mucous membrane irritation to potentially fatal outcomes.
- ii) *Complexity of mixtures* : this is highly complex and constantly evolving as literature is updated. This proposal should be deferred until such time that there is a scientifically robust, peer-reviewed method for determining exceedances for mixtures which has been adopted by the NSW Regulator. The attention paid by the regulator to the current single contaminant / single sample exceedance has resulted in increasing attention and control of airborne contaminants, with further work required in this space to address the known hazards, let alone mixtures.

Since a single exceedance of a WES may not be explicitly linked to an unacceptable risk to worker health, the high potential incident (HPI) process is not considered to be commensurate with the risk posed by such an incident or an appropriate vehicle for dealing with single sample exceedances.

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The value in recognising, investigating and reporting unacceptable exposures is of substantial value and should be a requirement. The Regulator should also have oversight on the risk to worker health, that being established by qualitative / semi-quantitative / quantitative means for each SEG. This information should be contained within principle hazard management plans (PHMP) and updated annually. Where exposure profiles for SEGs indicate an increased risk of overexposure, these should be reported in PHMP updates and incorporated into annual plans for future control and review.

GCG Proposal
(refer corresponding
reference number
above)

3a – new requirement:

- I. Exceedances to workplace exposure standards must be investigated and reported to the Regulator. This should be within 28 days of being informed of the exceedance result.
- II. Each site shall annually review risks to worker health and document within the sites principal hazard management plan (PHMP).

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4) Conclusion

- a) GCG has provided comment within the bounds of our expertise, limited to proposed amendments relating to the discipline of Occupational Hygiene.
- b) While identifying a number of valid issues in relation to sampling exposures to mineworkers, the review proposes solutions that are a simple adaption/extension of the existing approach. Critically, the proposal would require that the current approach is deemed to be adequate and contemporary, which GCG does not consider to be the case.
- c) GCG does not endorse expanding Schedule 6, on the basis that it is not proportionate to risk and does not align with contemporary practices.
- d) We submit that a deeper review is undertaken in relation to identification, assessment (including sampling) and control of workplace exposures with the intent to establish a contemporary approach.
- e) In the event that an existing approach is to be adapted for coal and non-coal mines, GCG instead propose expanding requirements within the Airborne contaminants principle hazard management plan (PHMP). Including:
 - I. Requirement to specify the sites annual sampling plan for relevant health hazards.
 - II. This plan shall be endorsed by a Certified Occupational Hygienist (COH) and reviewed on an annual basis.
- f) In the event that Schedule 6 is adopted, the proposal to extend the requirements to non-coal mines is considered impractical and strongly opposed.
- g) GCG welcome any further discussion or engagement from the Resources Regulator. Upon request, GCG can also substantiate or expand upon comments provided within this feedback letter.

Kind regards



GCG NSW Team Leader

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