



COAL SERVICES PTY LIMITED

SUBMISSION TO SENATE INQUIRY

WORKPLACE EXPOSURE TO TOXIC DUST

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SUBMISSION AUTHORISATION

Coal Services Pty Ltd provides to the *Senate Inquiry into Workplace Exposure to Toxic Dust* this submission responding to the invitation of Mr Elton Humphrey to Mr Ian Farrar. It is authorised by the Board of Directors of Coal Services Pty Ltd (CSPL). Its scope will be limited to the NSW coal mining industry, the priority area for CSPL's activities and expertise.

INTRODUCTION

A key success factor for the NSW coal mining industry, in the control and elimination of adverse health outcomes for miners as a result of exposure to toxic dusts, is the existence of CSPL, and its predecessor, the Joint Coal Board. This independent tripartite body with responsibility for both monitoring workplace exposure to toxic dust and conducting industry-wide health surveillance has ensured that new cases of pneumoconiosis and silicosis are non-existent in the NSW coal mining population.

The results of CSPL's ongoing occupational exposure and health surveillance monitoring and review processes demonstrate satisfactory control of exposure to workplace toxic dust within the NSW coal mining industry. After 60 years of regular monitoring promotion education and regulation, risk assessment and management processes with respect to toxic dusts are embedded within the culture of the industry.

Evidence collected throughout a 60 year period of monitoring a closed industry by CSPL shows that the exposure standards currently in place within the coal mining industry are effective, and the process for development of exposure standards for new or changing hazards within the industry is appropriate.

Definitions

Toxic Dust

For this submission "toxic dust" is taken to mean a dust with chemical or physical properties that may produce an adverse health outcome. The specific dusts on which this submission focuses¹ are

- Respirable coal dust
- Respirable crystalline silica

¹We have not considered exposures to diesel particulate, isocyanates, moulds and fungi in this submission. However, they are recognised as substances for which similar management plans are required as exist in the NSW coal mining industry for the two dusts above. CSPL is agreeable to providing comment on these if required. Asbestos is also not discussed in this submission as it appears to be adequately controlled and regulated. Indications of problems have not become evident in surveillance by CSPL. On the available evidence, synthetic mineral fibres are not considered to be a hazard in coal mining. Inhalable dust is an area of discussion at present. It would appear that there is insufficient evidence to consider inhalable coal dust toxic. CSPL has commissioned a review in which this matter will be one topic considered.

COAL SERVICES PTY LIMITED

Coal Services Pty Limited (CSPL) is the group of companies formed by the merging of the Joint Coal Board (JCB) and the NSW Mines Rescue Service (MRS) in January 2002. Its powers and functions are contained in its enabling legislation, the Coal Industry Act 2001 (NSW). Its relevant powers and functions in relation to toxic dust are:-

- 10) 1) a) providing occupational health and rehabilitation services for workers engaged in the coal industry, including providing preventive medical services, monitoring workers' health and investigating related health matters
...
(e) reporting to the Minister as it thinks fit, or when requested by the Minister, on matters related to the health or welfare of workers engaged in the coal industry, or on any other matter arising out of its functions,
...
j) monitoring dust in coal mines,
m) establishing or administering (or establishing and administering), or providing, workers compensation insurance schemes in relation to workers engaged in the coal industry.
- 11) (a) undertake or arrange for research, inquiries, investigations, surveys, tests and inspections,

Table: CSPL's Powers and Functions - Part 3, Div 2, Coal Industry Act 2001

CSPL is a tripartite body with NSW government oversight, jointly owned by the NSW Minerals Council (NSWMC), the peak group representing coal owners and operators in NSW, and the CFMEU, the union covering the majority of coal mine workers. The NSWMC and CFMEU are represented on the CSPL board.

Discharge of CSPL's Powers and Functions

Industry-wide Services and Programs offered by Coal Services Health

CSPL operates an occupational health, hygiene and rehabilitation service, Coal Services Health (CSH), to discharge its functions relating to mine workers occupational health.

This group provides the following industry-wide services.

- A health surveillance program for coal miners, assessing each worker periodically for the emergence of exposure-related disease. The main focus of this program is detection of the chest disease potentially caused by respirable coal dust and respirable crystalline silica.
- A dust monitoring service, monitoring on a regular basis exposure to respirable dust and respirable crystalline silica in each work crew for every mine.

CSPL has provided the twin strategies of exposure monitoring and health surveillance to the NSW coal mining industry for over 50 years. During this time, rates of pneumoconiosis have reduced from around 16%² to less than half of one percent.

² JCB Review of Pneumoconiosis prevalence.

Standing Committee on Dust Research and Control

Since 1954 an industry committee established by CSPL has operated to monitor and advise the CSPL board on issues related to toxic dust in the industry. The committee, the Standing Committee on Dust Research and Control (SDC) is tri-partite, with representatives from the coal operators, the coal union (through their legislated onsite officers - check inspectors) and the coal mining regulator (NSW Department of Primary Industries), through its Inspectorate. CSPL chairs the committee and provides expert input through its occupational hygiene and health staff. Relevant external independent experts are invited to attend the group and currently constitute a third of the core members.

The SDC meets bi-monthly to discuss current issues relating to dust exposure, to review the dust exposure results for the industry for the previous two months, and to determine any actions required in relation to research or education regarding dust. Through this process it involves the employers, Department of Primary Industries and Union representatives directly in exposure problem solving as well as reporting issues and results to their executive equivalent at the next CSPL Board meeting. Of interest is the case-study style of each meeting held onsite at a selected mine where atmospheric monitoring has suggested compliance difficulties. Visits always consist of a site inspection (including underground where appropriate) before the formal meeting. Toxic dust research commissioned by the SDC is funded through an independent, CSPL-established research organisation, the Coal Services Health and Safety Trust.

Workers Compensation Insurance for Coal Miners with Dust Disease

CSPL operates a WorkCover registered, industry-based, specialised workers' compensation insurance scheme (Coal Mines Insurance - CMI) for NSW coal mine workers. For workers covered by this scheme, unlike other workers in the state, a claim for dust disease can be made to the insurer. CMI holds records of all claims for dust disease made by workers in the industry. Claims made to the NSW Dust Diseases Board by NSW coal miners are referred to CMI for processing.

RELEVANT ISSUES

There are a number of broad issues that CSPL considers are relevant to the inquiry. They relate to the industry and occupational hygiene and health.

Exposure Standards

Exposure standards are based on the level of acceptable risk for a particular substance and as such do not depend solely on inherent toxicity, but also on the social and other economic factors that might demand production or use. Most exposure standards relate to environmental monitoring rather than personal biological outcomes. In the NSW coal mining industry, both are monitored, with CS Health's environmental monitoring unit

monitoring occupational environmental exposures and the health service monitoring the biological outcome via chest x-rays and structured medical assessments.

Exposure standards should not be used as a pass:fail dividing line, but rather as a driver for workplace management of hazards and the imposition of various levels of controls (for example; engineering solutions (especially ventilation in mining), isolation, administrative (rostering) or issue of personal protective equipment). Compliance with an exposure standard can be considered as an outcome of a system of work that is in control.

CSPL supports the view that an exposure standard should balance the competing demands of practicability and acceptable risk. Practicability ensures that any exposure standard can reasonably be met. The level of acceptable risk is that level that the community finds acceptable for the amenity that the exposure to the risk provides. This approach is taken to guard against unnecessary health effects from industry hazards through inappropriately lax health and safety requirements or unworkably stringent regulation – both of which inevitably fail.

Management Systems

A management system for occupational exposures provides the tool to limit the exposure of workers to unacceptable levels of toxic dusts. A good management system will contain several components, including general duties regulation, identification of toxic dusts, assessment of the risk posed by each identified dust, control strategies, a monitoring program with a clearly defined sampling strategy and appropriate health surveillance. The NSW coal mining sector has in place such management systems.

Dual focus is required

In order to limit the adverse health effects of occupational exposure, a dual approach of

- setting appropriate exposure standards, and
- implementing a management system to ensure that the standard is met,

is required. Focusing on an exposure standard, without ensuring that there is a management plan in place that includes monitoring and control strategies is not considered appropriate.

COMMENTS ADDRESSING SPECIFIC TERMS OF REFERENCE

CSPL's comments about the specific terms of reference follow:

a) health impacts of workplace exposure to toxic dust including exposure to silica in sandblasting and other occupations.

In the NSW mining industry, there is a good level of understanding of the health effects of exposure to toxic dust. However, there is also a genuine desire to avoid complacency.

CSPL is committed to ongoing surveillance and monitoring of, and research into, the effects of toxic dust on coal mine workers. CSPL's major initiatives are:-

Surveillance, monitoring and workers' compensation

- Through its health surveillance program, carried out by CS Health, every worker in the industry has access to a health screening assessment every three to five years, with an x-ray every second screening. This alerts CS Health to any incidence of pneumoconiosis or silicosis in the NSW mining workforce. This is done alongside the ongoing exposure monitoring program for exposure to respirable coal dust and respirable crystalline silica.
- The operation of Coal Mines Insurance (CMI), the statutory workers' compensation insurer for the NSW coal mining industry, with responsibility for dust claims arising out of industry exposures. Over the past ten years CMI has not seen any cases of lung disease consistent with exposure to respirable coal dust or silica. The issue of workers' compensation for health effects from these two dusts is greatly confounded by self-inflicted exposures such as smoking.

Continuous commitment to research

- CSPL is committed to advancing the forefront of knowledge, and ensures that it monitors and contributes to the body of evidence about the health effects of exposure to toxic dusts. Over the past ten years, the following projects are significant in this regard:-
 - *"NSW Cancer Surveillance Study"*. An ongoing epidemiological study into the incidence and prevalence of cancer (with particular emphasis on lung cancer) in the NSW coal mining population, now gearing up for the 2005 censored, third, five-year cycle.
 - *"Review of the Health Effects associated with Exposure to Respirable Crystalline Silica in Coal Dust"*. A review of all available research into the health effects of respirable crystalline silica (RCS), commissioned in 2004, reporting in 2005, commissioned by the SDC.
 - *"Review of the Health Effects associated with Exposure to Inhalable Coal Dust"*. A review of all available research into the health effects of inhalable coal dust, commissioned in 2004, due to report in the latter part of 2005. This study was also commissioned by the SDC.
- CSPL has also established the Coal Services Health and Safety Trust (the Trust) to provide research funds for projects associated with mine worker health. A major research focus of the Trust is occupational disease. Since the Trust was formed in 1991, several projects related to toxic dusts have been funded by the Trust. These are outlined in Appendix A.

b) the adequacy and timeliness of regulation governing workplace exposure, safety precautions and the effectiveness of techniques used to assess airborne dust concentrations and toxicity.

The NSW coal mining industry regulator is the Minerals division of the NSW Department of Primary Industries. DPI consults CSPL, and in particular CS Health and the SDC, regarding the health effects of exposure to toxic dusts. DPI sets exposure standards with reference to the advice it receives.

CSPL is able to comment on the effectiveness of techniques used to assess airborne dust concentrations. The current system in NSW coal mines for assessing airborne dust is Australian Standard 2985:2004, "*Workplace atmospheres – method for sampling and gravimetric determination of respirable dust*". This system has been in place since 1984, and with CSPL's NATA accredited laboratories undertaking analysis of samples collected under the standard, the industry is confident that the total process is independent, valid, reliable and accurate.

However, CSPL's commitment to ensuring that its practices are worldclass means that it continually monitors developments in this area. For example it recently commissioned a trial of a ground breaking real-time system of airborne dust sampling, the tapered element oscillating microbalance (TEOM), currently under development and testing in the USA. CSPL provided an interim report to industry regarding the TEOM in July 2005, and will report more comprehensively within the coming year on those trials.

In respect of the toxicity of airborne dust, CSPL monitors relevant medical and epidemiological research in the area of respirable and inhalable coal dust and RCS, commissioning its own studies when there is a lack of easily available evidence.

c) the extent to which employers and employees are informed of the risk of workplace dust inhalation

CSPL uses the following avenues for providing education and information to the NSW coal industry:-

- Provision of results of personal dust sampling to each mine
- Provision of advice regarding methods to better control personal exposure to toxic dusts through CSPL staff, and through the meetings of the SDC.
- Publication of educational material on coal dust and silica (copies of these two pocket-size books are appended)
- One-on-one counselling of employees during health surveillance assessments and dust sampling, provided by CS Health's staff
- Tool-box talks to work teams

d) the availability of accurate diagnoses and medical services for those affected and the financial and social burden of such conditions

In the NSW coal mining industry, accurate diagnosis of disease resulting from exposure to toxic dusts is via the ILO's international x-ray interpretation system. Medical services, however, rely on the early detection and the subsequent removal from the exposure. There is no curative treatment for the diseases caused by exposure to coal dust and silica, in most cases early removal stops progressing with minimal long term effects. Lung cancer is not associated with coal dust exposure but may be associated with silica exposure. Diagnosis is usually at a late stage, even if seen early on xray. There does not currently appear to be a satisfactory screening process for the disease. Some practitioners believe that silica-associated lung cancer stems from silicosis and that early detection and removal from exposure may be beneficial in preventing this complication.

The current financial and social burden within the NSW coal industry is low, given the zero incidence of new disease claims, and is limited to the run-off from old cases.

e) the availability of accurate records on the nature and extent of illness, disability and death, diagnosis, morbidity and treatment

CS Health keeps health records on all coal miners who enter the NSW coal mining industry and those who present for health surveillance screening assessments. CMI keeps records of all claims for workers' compensation with respect to exposure to toxic dusts. For privacy reasons these datasets are not linked.

CS Health, through its cancer surveillance project, holds confidential material relating to the incidence of lung cancer in the industry. This material is not available to anyone other than the researcher due to the constraints of agreements associated with the ethics approval for the project. General statistics are available through the published findings of the study.

f) access to compensation, limitations in seeking legal redress and alternative models of financial support

In the NSW coal mining industry, workers may make a claim under the NSW workers' compensation insurance system for benefits and under common law for damages if they contract coal workers' pneumoconiosis or silicosis.

g) the potential for emerging technologies, including nanoparticles, to result in workplace harm

Within the NSW coal mining industry, current management systems ensure that prior to the introduction of new technology, a risk assessment is conducted that will identify the potential risks associated with its introduction. This includes consideration of adverse health effects. CSPL provides input into the risk assessment process through its CS Health staff, and the SDC.

An example of this in operation is the requirement for mining companies to make application to CSPL before commencement of new longwall operations in any mine. CSPL examines the technology and its application, in particular the methods of dust suppression and previous dust sampling results, to ensure that the risk of exposure to dust from the new technology is minimised.

Nanoparticles are an interesting new subject on which there is little current evidence implying health effects in the coal mining industry. CSPL will be monitoring this as appropriate.

SUMMARY

CSPL is committed to continuing its work of the past 60 years to ensure that the adverse health effects of exposure to toxic dusts, in particular to coal dust and respirable crystalline silica, are eliminated. The strategies of a coordinated industry-wide health surveillance and exposure monitoring program by CSPL, an independent organisation, places the NSW coal industry in the best possible position in relation to toxic dust.

Signed:

IL Farrar
Managing Director/CEO
CSPL
Date: 12/08/2005

APPENDIX A – RELEVANT RESEARCH PROJECTS

Projects related to toxic dusts funded by the Coal Services Health and Safety Trust

1. “Keeping Coal Miners Healthy at Work – An Occupational Hygiene Manual for the Coal Industry” – Brian Davies, et al.1997, rev 2001, rev 2004.
2. “Extended Shift Exposure Limit Adjustment Factors for Coal Mine Dusts” – Gerard Tiernan et al, 1998
3. “Evaluation of the TEOM Continuous Respirable Dust Monitor for Use in Australian Coal Mines – Stage 1” – Joint Coal Board, 1999
4. “Investigation of Dust Generation and the Effectiveness of Suppression Techniques Used on Longwall BSL and Crushers” – Andy Rutherford, 2003
5. “Quantification of Effects of Occupational Health and Hygiene Issues for the Illawarra Coal Underground Operations” – Steve McFadden et al 2004
6. “Impact of Change of Flow Rate in AS 2985:2004 on Silica and Respirable Coal Dust Exposure Standards” – Coal Services Health, 2004

Projects related to toxic substances (not dust) funded by the Coal Services Health and Safety Trust

1. “Detection of DNA Adducts in Coal Miners Exposed to Diesel Engine Emissions” – Stacey et al. 1995
2. “Exposure to Diesel Particulate Under Various Operating Conditions in QLD Underground Coal Mines” – Alan Rogers, March 2002
3. “Methods for Measuring Diesel Particulate Matter (DPM) from Underground Mining Equipment” – Clive Ellis, 2004
4. “Exposure to Diesel Particulate during Longwall Moves” – CSPL – 2005 (ongoing)
5. “Evaluation of the TEOM Continuous Respirable Dust Monitor for Use in Australian Coal Mines – Stage 2” – CSPL, 2005 (ongoing)