

INVESTIGATION INFORMATION RELEASE

JANUARY 2020

Underground mine worker contracts mixed dust pneumoconiosis

Event: Underground coal mine worker contracts dust-related disease

Location: Undetermined

Overview

A 41-year-old worker (Worker A) with about 11 years' underground mining experience has been diagnosed with mixed dust pneumoconiosis. The NSW Resources Regulator has completed an investigation into the incident/s.

The worker

Worker A was employed at various underground coal mines in the southern coalfields of NSW. He also worked as a motor mechanic for 11 years and was in the civil construction and tunnelling industry for about 18 months. His work history is summarised in Table 1.

Table 1 Work history of affected worker

Dates	Role	Primary duties
1995-2006	Motor mechanic (non-mining)	Light vehicle automotive mechanic conducting all mechanical work, including brake repairs.
2006-2008	Operator - Westcliff Coal Mine (underground coal)	Mine services predominantly secondary roof support. Some of this work was conducted in the tail gate of longwalls.
2008-2009	Operator - Russell Vale No. 4 shaft (underground coal)	Development operator in cut and flit panel. Operated Fletcher dry bolting machine and shuttle car. Fall recovery.
2009-2015	Operator NRE No.1 mine (underground coal)	Development operator – continuous miner operation.
2016	Plant operator - WestConnex	Site set up - operating rollers, excavators, dump trucks and skid steer
2016-2017	Plant operator – WestConnex	Tunnel excavation, road header operator.
2017-2019	Operator - Wongawilli Coal Mine	Continuous miner operator – N3 panel. Development and lifting off operator.
March 2019	Operator - Russell Vale Colliery	Fall recovery.
April - September 2019	Dendrobium Mine	Development operator.

Workplace conditions

The worker described varying mine conditions he was exposed to including:

- very dry and dusty roadways – particularly in returns
- regular stone cutting due to high drivage and floor brushing
- ineffective ventilation systems on mining equipment
- exposure to exhaust fumes from diesel equipment.

The worker also described what he considered shortcomings in dust management practices at several of the mines including:

- insufficient resources being applied to maintenance and dust management
- failure to treat roadways to mitigate airborne dust (e.g. salting)
- providing short-term solutions to dust issues.

Use of respiratory protective equipment

The worker stated that he regularly wore dust masks, particularly when undertaking tasks that involved dust creation and when moving through dusty areas. However, the worker described several scenarios where the effectiveness of respiratory protection may have been compromised. They included:

- He did not undergo a fitment test before 2012 or 2013.
- After undergoing a fitment test, the worker estimated that the type of masks he was fit-tested for were only available on about 10 per cent of occasions.
- He reported using a variety of different masks, including silicon and P1/P2 paper masks. He preferred using silicon masks, however it was often difficult to obtain replacement filters, resulting in him using other types of masks.

It is noted that respiratory protective equipment is the last line of defence in the control of airborne dust inhalation. (Hierarchy of control.)

Health monitoring

The worker participated in regular health monitoring conducted by Coal Services Pty Ltd between 2006 and 2019. This involved spirometry assessment, X-ray and functional testing. X-ray examinations conducted in 2006, 2014, 2017 and 2019 did not identify any abnormalities in the worker's lungs.

Onset of illness and diagnosis

The worker reported first noticing symptoms associated with pneumoconiosis around mid-2018. He experienced shortness of breath and began coughing up phlegm and blood. He attended his general practitioner and was referred to a respiratory physician. A series of CT scans were performed, and the initial indications were that he may have been suffering from sarcoidosis or a dust disease.

The worker underwent a lung biopsy in September 2019, which confirmed a diagnosis of pneumoconiosis, secondary to exposure of coal dust and silica.

Workplace dust monitoring

Coal Services undertook sampling of atmospheric respirable dust and silica at the worker's mining workplaces.

Table 2: Atmospheric sampling at relevant mine locations during relevant periods

Period	Location	Tests	Exceedances respirable dust (>2.5 mg/m ³)	Exceedances – silica (0.1 mg/m ³)	Observations
1 Jan 2006 to 31 Dec 2008	West Cliff	506	16	5	<ul style="list-style-type: none"> ■ Approximately 60% of workers sampled were using some form of respirator. ■ Worker A was not sampled.
1 Jan 2008 to 31 Dec 2009	NRE No. 1 (No. 4 shaft)	211	8	3	<ul style="list-style-type: none"> ■ Most respirable exceedances within 1% of the workplace exposure standard, but there

					<p>were two very high exceedances – 11.9 and 5.8%)</p> <ul style="list-style-type: none"> Worker A was sampled twice.
1 Mar 2009 to 31 Dec 2015	NRE No.1	494	10	8	<ul style="list-style-type: none"> Most dust exceedances were within 1 % of standard. Worker A was sampled 6 times.
1 Jul 2017 to 30 May 2019	Wongawilli	68	0	0	<ul style="list-style-type: none"> Approximately half of the workers sampled were wearing P2 disposable masks. Worker A was not sampled.

The investigation

The NSW Resources Regulator’s investigation into the worker’s illness has involved:

- obtaining relevant medical reports
- conducting a detailed interview with the worker to obtain his work and health history
- obtaining information from the worker’s general practitioner, treating specialist and Coal Services
- reviewing and analysing the information obtained.

Findings

- The worker has contracted pneumoconiosis, secondary to exposure of coal dust and silica.
- In consideration of the specific nature of the medical diagnosis and the worker’s employment history, it is reasonable to conclude that the worker’s condition is related to his work as an underground coal miner, however it cannot reasonably be determined, based on a review of the evidence obtained, whether the worker contracted the disease as a consequence of exposure while working at any particular mine.

- The worker developed pneumoconiosis despite his stated practice of using respiratory protective equipment on a regular basis and being subject to fit testing.
- The worker's condition is expected to remain stable if he remains out of dusty environments. He has been advised by his treating specialist that he should not to return to a mining environment.

Recommendations

Current and former coal workers are encouraged to maintain their scheduled screening and to contact Coal Services to arrange a medical examination if they have any concerns about their respiratory health.

Coal Services has the following guidance material available:

- [Prevention of pneumoconiosis in NSW - Information for workers in the NSW coal mining industry](#)
- [Protecting against airborne dust exposure in coal mines](#)

Mine operators should ensure the adequacy of the principal hazard management plan for airborne contaminants. The review should include:

- the hierarchy of controls
- all dust suppression measures, including the method of mining
- mine ventilation to remove dust
- all personal protective equipment (PPE) supplied to filter dust
- atmospheric monitoring
- worker monitoring
- worker education and supervision.

Further guidance published by the NSW Resources Regulator is available at:

- [Guide - Airborne contaminants principal hazard management plan](#)
- [Fact sheet - Airborne contaminants](#)
- [Investigation information release - Serious illness \(Worker Y\) - May 2019](#)
- [NSW Resources Regulator publication - Dust safety in the metals and extractives industries](#)

About this information release

The NSW Resources Regulator has issued this information to draw attention to the occurrence of a serious illness in the mining industry. Further information may be published as it becomes available.

The information contained in this publication is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the NSW Resources Regulator or the user's independent adviser.

© State of New South Wales through the NSW Department of Planning and Environment 2020.

This publication is copyright. You may download, display, print and reproduce this material in an unaltered form only (retaining this notice) for your personal use or for non-commercial use within your organisation. To copy, adapt, publish, distribute or commercialise any of this publication you will need to seek permission from the NSW Department of Planning and Environment.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (January 2020). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the NSW Department of Planning and Environment or the user's independent advisor.

DOCUMENT CONTROL

CM9 reference	DOC20/4412
Mine safety reference	IIR20-01
Date published	16 January 2020
Authorised by	Chief Inspector Office of the Chief Inspector