



Responses to NSW Legislative Council Portfolio Committee #2

Inquiry into Current and potential impacts of gold, silver, lead and zinc mining on human health, land, air and water quality in New South Wales

Questions on notice

1. *How many times has Newcrest been fined for dust pollution over the past few years?*

Twice:

- On 31 July 2020, the NSW Environment Protection Authority (EPA) issued a penalty infringement notice and fine of \$15,000 to Cadia Holdings Pty Ltd (Cadia) under the *Protection of the Environment Operations Act 1997* (POEO Act) for contravention of Condition 03.1 of Environment Protection Licence No. 5590 (EPL) held by Cadia, being that 'the premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.'
- On 4 August 2022, the EPA issued a penalty infringement notice and fine of \$15,000 to Cadia under the POEO Act for contravention of Condition U1.1 of the EPL held by Cadia for its failure to maintain the dust suppression cover of the entire tailings storage facility.

2. *How much dust are you collecting per day with the recently installed filter and vent 8?*
3. *How many of these one-tonne bulky bags are being used per day?*

Since the fifth dust extraction unit came online at Ventilation Rise 8 in mid-August 2023, the average mass of dust captured per day is 6,338 kilograms, with an average of 11 bags used per day.

It should also be noted that a 2023 study by Todoroski Air Sciences on emission rates from the ventilation rises at Cadia Valley Operations (CVO) found that recent sampling of the ventilation emissions from VR8 do not correlate with the PM10 modelling prediction when compared against the long-term air quality monitoring data collected by CVO or the Australian Nuclear Science and Technology Organisation.

This poor correlation relationship is due to the weight of the emitted particles (i.e. aerodynamic particle characteristics) which causes most of the particles to be deposited within and on the ground immediately surrounding the ventilation rise.

This localised deposition of the emitted particles is readily observable and of a scale that requires CVO to undertake a routine cleaning maintenance program. Therefore, only a small percentage of the emitted particles have dispersive aerodynamic characteristics which are therefore measurable at the ambient air quality monitoring locations which surround the CVO.



4. *I'm interested in understanding who your customers are and who you're selling the copper to. Can that be provided?*

Our copper is sold in concentrate form at prevailing market price to copper smelters/refiners mostly in a range of Asian countries who produce copper cathode.

In turn, this copper cathode is used in the manufacturing of continuous cast copper rods used by the wire, cable and transformer industries and copper tubes for consumer durable goods, alloys and sheets.

Responses to supplementary questions

1. *You mentioned the significant expansion of mining which will be required in the near future to meet global net zero goals. What are some of the barriers to this expansion?*

Newcrest like many Australian minerals companies is committed to supporting government goals of achieving net zero which will require vastly more minerals to help transform the global energy system.

In turn, this will require more mines to be developed, more quickly.

Policy settings could be implemented and altered to encourage greater mining investment.

Increasing complexity, lack of transparency on requirements and red tape in permits and access are pushing out approval timelines and negatively influencing the highly mobile flow of mining capital. Removal of red tape should not lead to sub-standard environmental and social assessment or weaker approval and licence conditions.

This also applies to minerals exploration. Research published in June 2023 by *Mining Magazine Intelligence* showed exploration groups saw permitting and access to land as the single greatest challenge to discovery in the next 12 months.

The NSW Government should work with the industry to streamline permitting and improve land access. The government should also work with resources companies to transform mineral discoveries into raw material producers – and downstream processors and manufacturers where economically viable – for the energy transition.

2. *How important are mines like Cadia to an ongoing pipeline of highly skilled, secure, long-term jobs for regions like Orange?*

Cadia is a significant contributor to local and regional employment through the provision of highly skilled, secure, long-term jobs.

More than 1800 people are directly employed at our Cadia operations, which support more than 200 different types of roles, ranging from engineers and management positions through to trades assistants and truck operators.

More than 30 apprentices are also employed at site in skilled trades such as electricians, mechanics and boilermakers.

A 2020 socio-economic study showed the mine generated over 3200 direct and indirect jobs. Around 85 per cent of our workforce lives in the Orange region, with no fly-in fly-out camp accommodation.

The average tenure of Cadia's workforce is 6.1 years, with around one fifth of our workforce having at least 10 years of service.

Around one third of the mine's service spending, or some \$217 million in 2021-22, goes directly to paying the salaries and wages of our workforce.

3. *What information does Newcrest routinely compile when it comes to managing and monitoring potential impacts on air and water quality and how is that made available to the public?*

Air quality monitoring at the site boundary and within the local community is conducted through an extensive array of measurement devices in the area, including:

- Particulate Matter (PM) ambient air quality monitoring via Beta Attenuation Monitors (BAMs) provide continuous PM10 and PM2.5 particulate concentration measurements using the proven principle of beta ray attenuation. Continuous air quality monitoring at various locations around the Cadia district has been in operation since 2011
- Dust deposition gauges are located at 11 sites around the Cadia District and the Cadia Dewatering Plant, which are analysed monthly for metals and total dissolved and insoluble solids
- Visual dust monitoring during routine inspections and when complaints are received, for which mitigation measures are implemented where excessive dust generation has been identified
- High volume air samples measuring a 24-hour sample on six-day cycle, which enables assessment of annual average Total Solid Particles (TSP), TSP-PM10 correction and collect physical sample for elemental/chemical analysis (including heavy metals), located at four sites surrounding the mine (at BAM locations)
- Since January 2022 the Australian Nuclear Science and Technology Organisation (ANSTO) have operated PM2.5 air samplers and meteorological monitoring stations in the districts to the east, south and west to determine influences on the district air shed
- Meteorological monitoring, where we also use our on-site weather stations as part of our air quality monitoring program.

The results of this monitoring are reported monthly on the Cadia website.

Newcrest's Water Management Standard defines the requirements for water monitoring at all managed Newcrest sites and supports the establishment of local monitoring processes to ensure that relevant regulatory requirements and permit conditions are met.

Cadia operates under an approved Water Management Plan which has been developed in accordance with Cadia's Project Approval PA06_0295 and EPL 5590 and documents the site water management strategy, site water efficiency plan and monitoring and management of any potential impacts to local surface water and groundwater resources.



Results of the monitoring program are submitted to the relevant regulators as part of the Annual Environmental review and are also made publicly available on the Cadia website as part of its summary of environmental and social performance for the preceding reporting period. The Annual Review is developed in accordance with the requirements of the Cadia's Project Approval and the DPE Annual Review Guidelines.

NSW EPA has recently undertaken soil sampling across the Cadia district and released a report on its website [An investigation into metals in soil around the Newcrest gold mine in Cadia](#).

This report has shown that there is no evidence that dust deposition has affected the surrounding land and that the metals concentrations naturally occurring in soil in the district are at the same concentrations as pre-mining.

4. *The Committee heard suggestions that it is possible boundary monitoring of air quality may not be sufficient for measuring potential impacts resulting from some ventilation shafts due to the height of these ventilation structures and the speed in which emissions are expelled. Could you comment on how your boundary monitoring does or does not take into account such factors and whether this is supported by any independent expert advice?*

The modelling is undertaken in accordance with the NSW EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (NSW EPA, 2022) and takes into account ventilation structures, exit velocities and topography.

Monitoring locations are chosen based on the model outputs for the maximum potential deposition rates. The modelling reports and monitoring positions are set by NSW DPE in Cadia's Project Approval and by the NSW EPA in the Environment Protection Licence after review and approval of the Air Quality Impact Assessment.

Whilst the Committee heard that our air quality monitoring is characterised as 'boundary' monitoring, the monitoring system incorporates instrumentation located at additional locations over and above those at the boundary.

Ambient air quality monitoring is undertaken in three radial 'rings' to determine deposition and potential impacts; these are on site close to operational areas, at the closest receptors (residences adjacent to our lease boundary) and deeper into the surrounding district.

Monitoring locations were reviewed by the Zephyr Environmental Independent Air Quality Audit, August 2022. This modelling and monitoring shows that air quality is monitored accurately.



5. *The Committee has been told by the Cadia Community Sustainability Network that ‘Every tailings dam, every mine in our shire is already polluting the river.’ What is Newcrest’s response to this claim?*

The claim implicit in this statement that Cadia’s operations and tailings dam are polluting local water systems – specifically, the Belubula River – are incorrect.

Cadia is a zero water discharge site.

Condition 23 of Cadia’s Project Approval states that Cadia ‘shall not discharge any water from the site except as may be expressly provided by an EPL, or in accordance with section 120 of the *Protection of the Environment Operations Act 1997*.’

As earlier noted, Newcrest undertakes significant monitoring of all groundwater resources to ensure compliance with Cadia’s Environment Protection Licence and Project Approval.

6. *The Committee has heard from the community about tests they have conducted and suggestions that the Cadia mine could be a source of metals indicated in these tests. Did the SAGE Human Health Risk Assessment commissioned by Newcrest examine in detail the potential for some metals to occur naturally in the food chain?*

While the SAGE Human Health Risk Assessment did not specifically examine the potential for some metals to occur naturally in the food chain, the question is nonetheless pertinent to the deliberations of the inquiry in that cobalt is found in vitamin B12, copper is used in agricultural fungicides and commonly used for piping in domestic plumbing systems and selenium is commonly found in a range of meats, dairy, nuts, cereals, and legumes (and even bananas).

SAGE used the National Environment Protection Measure (NEPM) guidance material to determine intake of metals via consumption of food. These figures are the averages from all of Australia taken from the *Australian Total Diet Survey (2011)*. These figures for metals in food have been incorporated into the exposure calculations.