Newcrest's lead contamination claims 'inconsistent' with expert report findings, its author says

Prof Brian Gulson says Cadia Hill goldmine could not be ruled in or out as the source of the lead, despite miner saying there was 'no evidence'

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An expert who analysed rainwater samples for possible lead contamination from Newcrest's Cadia Hill goldmine says the company's public interpretation of his report is "inconsistent" with his findings.

Newcrest commissioned Prof Brian Gulson from Macquarie University to conduct a lead isotopic analysis of water and sediment samples taken from 145 residential properties in the region and compare those with the lead found in the mine's ore.

Commissioning the independent analysis was one of the conditions of a variation to Newcrest's mining licence, ordered by the New South Wales Environment Protection Authority in June as part of an investigation into emissions from the mine. It followed reports by some community members that independent testing of their water tanks had found high levels of heavy metals, including lead.

The samples were collected in March and April. Guardian Australia understands that Newcrest provided 88 sediment samples and 16 water samples – 12 from rainwater tanks and four from the kitchen tap – to the University of South Australia for lead isotopic fingerprinting, a tracing technique used to identify the possible sources of lead.

Newcrest said that only the water samples that returned readings for lead above the Australian Drinking Water Guidelines of 0.01mg/L were sent for isotopic fingerprinting.

Gulson's report analysing those results was published last Friday.

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In a press release on Wednesday, Newcrest said the report found “no evidence” linking Cadia to the lead in the samples. It also claimed the report said 74 of the 88 sediment or sludge samples had “no correlation” to the lead samples taken from Cadia’s ore.

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The remaining 14 samples exhibited “similar characteristics” to the lead samples from the mine’s ore and soil in the district, Newcrest said. Those samples also “recorded the lowest concentration of lead amongst all the sludge samples”.

“It’s clear to us in the [report’s] conclusion that there is no evidence linking Cadia to the lead that was found in the samples in the tanks that we tested,” the Cadia Valley Operations general manager, Mick Dewar, told Guardian Australia.

He added that the company does “note and acknowledge” Gulson’s comments in the report that the lead characteristics of the mine’s ore and the lead found in regional soil samples “could not be discriminated”.

“In addition to that, it was noted that there were no other markers or pointers suggesting that Cadia could be linked, such as a higher propensity of concentrations close to the mine,” Dewar said.

“There was no relationship there that suggests that the inability to discriminate between those two characteristics was anything other than no tangible link.”

Gulson, who is an expert in lead analysis, said the “claim about ‘no evidence’ is inconsistent” with his findings.

It is also inconsistent with Newcrest's own fact sheet on the report, which says that due to the overlapping signatures "the source [of lead] could not be determined".

"The ore field [lead] signature is in 12 of the 13 soil samples," Gulson said.

He recommended a more comprehensive soil lead isotope testing program should be undertaken, given the "dominant" lead signature from the mine.

"You need more information, more data to try and get that relationship between either the mining operations or the soil," he said.

Gulson said the report's findings were inconclusive but did not rule out a connection to the ore from the mine. Of the water samples analysed, nine of 12 rainwater tanks samples and one of four kitchen tap samples were found to have lead isotopes matching Cadia's ore.

Of the 88 sediment samples, 14 matched the lead isotope from Cadia's ore and 74 were found to be consistent with lead "derived from a mixture" of sources, including the mine's ore, rocks and soil, and lead from other contaminants such as petrol, batteries and paint.

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But Gulson said "there was not enough data or hardly any data" to determine the source of lead found in the tanks.

"The important thing is that there was the [lead] fingerprint in some of the sludge samples [that] coincided with the ore field signature, but that didn't necessarily prove that it actually came from the ore samples themselves," he said.

"You can't distinguish whether or not it's the signature coming from the ore, the mining operation or out of a vent … or whether it's soil that's blown in on to the roofs and then finished up in the sludge. And at the moment, you can't really say which is which."

Newcrest is yet to provide the EPA with the chemical analysis of samples taken from the mine's main crusher dust vent. That report is due at the end of July.

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Due to his concerns around the accuracy of data and methodology in the report, Gulson recommended measuring a suite of samples with more precise methods to validate the data already accumulated.

Dewar said that while the company is “actively reviewing and considering” Gulson’s recommendations, it is “not inclined to pursue” them.

He said the company was taking “a broader viewpoint” of concerns about its emissions.

“In terms of narrowing the focus down to Cadia’s contribution to that lead, we’re satisfied with Prof Gulson’s report, with the Todoroski air modelling, with the Ansto modelling, with our boundary PM 10 monitoring and TDS modelling, that there is no evidence supporting that link,” Dewar said.

Taken together, Dewar said, those studies “strongly suggest that there is no evidence that we are creating a risk” to the community’s health.

“We think we’ve done the work to demonstrate that now,” he said.

The EPA told Guardian Australia it was currently reviewing the report, which will inform its regulatory activity. “Where appropriate, we will seek advice from our recently established expert panel to inform any future monitoring,” a spokesperson said.