

National Toxics Network Submission on ratification of the Minamata Convention by Australia.

Ratify the Convention and ban Australia's mercury exports.

By Lee Bell for the National Toxics Network (Australia), incorporating joint submission by the *World Alliance for Mercury-Free Dentistry* on dental amalgam.

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The National Toxics Network support Australia's government ratifying the Minamata Convention on Mercury, albeit a very belated ratification, following 131 other countries including most OECD countries and many non-OECD countries.

Mercury is dangerous neurotoxic metal pollutant but also a valuable commodity for international trading purposes. Compliance with the Convention may not prevent recovered mercury exported from Australia from reaching Indonesia, the Philippines, Kenya or certain Latin American countries where gold extraction using mercury is practised during ASGM. Releases and emissions from ASGM (which is not practised to a significant degree in Australia) are now the highest source of global mercury pollution.

Mercury exports

If Australia is serious about cutting global mercury pollution and preventing commodity grade mercury reaching ASGM locations, only to have the mercury return as aquatic and airborne pollution, then Australia must implement a national mercury export ban. Two of our major trading partners (EU and the US) have implemented export bans with negligible impact on their economies but with major prevention of emissions if that mercury had continued to be traded.

While Australia only exported 150 kg of mercury between 2016 and 2019 that total has skyrocketed by **50 fold to 7523 kg** of mercury in the 2020 data collection year¹. The value of this mercury is recorded as \$33,000 which is a gross underestimate as the current market value of mercury is around \$660,000 for 7523 kg. This may indicate a stampede by stockpilers and holders of bulk mercury in Australia to export this material before ratification and subsequent restrictions come into effect.

Due to the historical lack of mercury treatment and disposal facilities in Australia it is well known that certain metal processors, refiners and the oil and gas industry stockpile mercury onsite. In the last 3 years two new mercury treatment facilities have been established in Western Australia to handle mercury waste from the oil and gas industry. However, this is costly and exporting commodity grade mercury is profitable. Without an export ban this mercury 'leakage' from Australia may be interpreted as an attempt to shift remaining stocks for a profit rather than meet the costs of domestic ESM of mercury waste as will be required under the convention rules. The government needs to act swiftly to prevent further mercury exports of this scale.

The Oil and Gas sector.

The Australian oil and gas sector is a major source of mercury waste, emissions and releases. While two new mercury treatment plants have been established in WA to manage mercury wastes from

¹ See UN COMTRADE data <https://comtrade.un.org/data/>

the O&G sector not all wastes are being treated adequately. The fate of some mercury recovered during treatment is also problematic with it being sent to Victoria for use in dental amalgam from at least one of the treatment plants.

Recently an oil and gas worker was drenched in a mercury and benzene mixture while **35 tonnes** of elemental mercury was reportedly being cleaned out of the MRU system at the Chevron Barrow Island facility². This scale of mercury accumulation within a single gas production unit is indicative of the scale of the problem. Mercury emissions from flaring of gas are high and the content of mercury in drilling muds, MRU catalysts, pigging units and slug catchers can be many tonnes per annum.

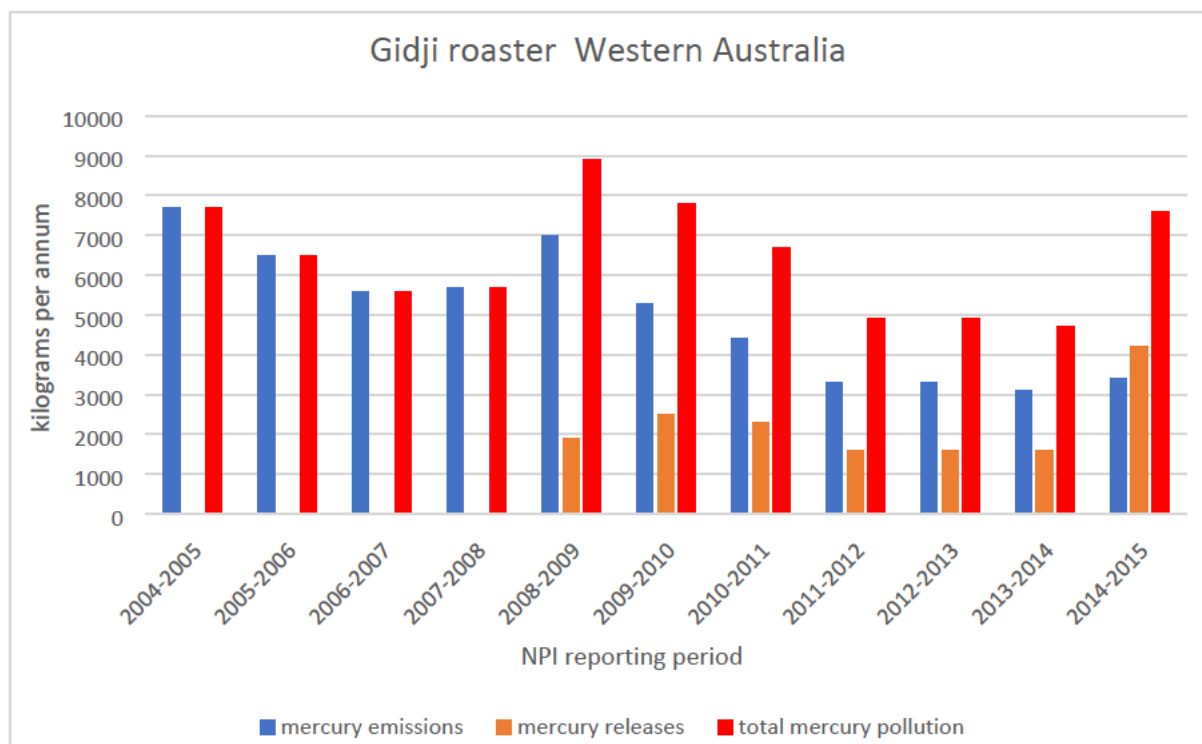
During the negotiation of the Minamata Convention lobbyists from the oil and gas sector ensured that their industry was not included in Annex D despite overwhelming evidence being available that they are a considerable, ongoing and growing source of mercury pollution.

If the Australian government finally ratifies the Minamata Convention they will be required to report on the Oil and Gas sector waste streams, emissions and releases as part of their national reporting requirements on inventories of emissions, releases, waste and stockpiles of mercury. There is anecdotal information that major oil and gas producers are stockpiling large quantities of mercury onsite. This must be audited and included in national reports.

Mining

The Gidjie gold ore roaster north of Kalgoorlie, WA, had the unenviable reputation as the southern hemisphere's highest emission point source of mercury for many years with estimates ranging between 3100 and 7700 kg mercury emissions per annum. Between 2004 and 2015 over 55000 kg of mercury was released into the atmosphere over Kalgoorlie and an additional 15000 kg was 'released' to land. The owners KCGM, have changed the method from ore roasting to ultra-fine grinding' followed by carbon-in-pulp gold extraction in 2015. This has effectively transferred around 6500 kg of mercury per annum to tailings ponds around the site.

² <https://www.energynewsbulletin.net/workforce/news/1409032/chevron-contract-worker-suffers-mercury-poisoning-on-barrow-island>



Investigations of mercury contaminated land around this site should take place as a priority. The release of over 55 tonnes of mercury into the airshed over Kalgoorlie between 2004 and 2015 is likely to have resulted in significant environmental contamination and food chain impacts.

Thousands of kilograms of mercury are now being deposited into tailings ponds associated with this operation and the sustainability and sound management of this waste should be reviewed.

Coal fired power.

The coal fired power stations, coal fired smelters, refineries and industrial boilers of Australia produce up to 48% of total mercury emissions. While the RIS notes 21% for fossil fuel energy production, 27 % for the production of alumina, page 73 of the RIS implies that coal burning for alumina production is a significant source of the alumina industry mercury emissions. It is also known that the Bayer process used in Western Australia results in significant quantities of entrained mercury from the bauxite ore collecting in the pipework as pools of elemental mercury. This suggests that switching fuel from coal for energy to gas or some other fuel may not rectify the problem. The ore body contains mercury which is resulting in emissions and therefore the alumina industry should be required to establish mercury capture technology both for emissions and releases.

Elsewhere in the country coal fired electricity plants remain a serious source of mercury emissions and releases and should be rapidly phased out. No new coal fired power plants should be constructed and existing facilities must be equipped with BAT BEP pollution controls.

Solid waste such as fly ash is a significant contributor to environmental contamination. It currently ranks as the largest fraction of waste generated in Australia every year (18% of total waste generated) and is hazardous – yet it is not classified as hazardous. As Blue Environment note in their

2019 report for the Department of the Environment and Energy³, *“Fly ash (from coal fired power generation) arises in exceptionally large quantities, but is typically discussed and quantified outside of the hazardous waste framework (see the National Waste Report³⁵, Figure 45 p. 105). However, it contains hazardous materials such as heavy metals at concentrations that, without the exemption, could be sufficient to classify it as hazardous waste.”*

With 12 million tonnes of coal fly ash produced in Australia every year, and no environmentally sound management technique, the impetus to switch away from fossil fuel based power to renewables is even greater. The mercury from coal ash dumps continues to drain into our environment and waterways at ever greater rates.

Pesticides

The mercury-based pesticide Shirtan, has been responsible for the release of between 4000 and 5000 kilograms of mercury released directly to the environment every year, for decades. This appalling product has finally been de-registered despite alternatives having been readily available for years. The impact of this pesticide will be felt on the aquatic life of waterways in cane growing areas for decades to come as the food chain is subject to methylation of mercury and bioaccumulation in aquatic biota. The Great Barrier reef will likely be impacted as a major receiving environment for this toxic metal. Irrespective of ratification the Federal government should immediately seek to identify remaining stockpiles of this pesticide in public and private hands and ensure its safe treatment and stabilisation.

Dental amalgam

The World Alliance for Mercury-Free Dentistry⁴ and the National Toxics Network urge Australia to ratify the Minamata Convention and implement all of its provisions – especially the dental amalgam phase down requirement and the decision to accelerate the transition to mercury-free dentistry.

The Convention highlights and the world has determined – as the data clearly show – that amalgam is a major source of mercury. The Global Mercury Assessment report revealed that mercury in dental use amounts to 10% of global consumption overall and over 20% of the mercury consumed in products. Amalgam, containing 50% mercury, presents a major risk of secondary poisoning when released to the environment and when it methylates up the food chain into the fish pregnant women, nursing mothers and children eat⁵. The problem of amalgam’s mercury cannot be resolved with separators because most of amalgam’s mercury walks out of dental clinics in patients’ mouths – exposing them to mercury both directly from their fillings and indirectly after amalgam’s mercury is released into the environment via human waste, improper disposal when teeth or fillings fall out, cremation, or burial.

Australia has the tools at hand⁶, now, to reduce substantially the use of dental amalgam. Specifically, the federal government and the dental community should consider following the strong

³ Blue Environment (2019) Hazardous Waste in Australia 2019. Report for the Department of the Environment and Energy. <https://www.environment.gov.au/protection/publications/hazardous-waste-australia-2019>

⁴ The World Alliance is a global coalition of consumer, dental, and environmental organizations working together to phase out amalgam use. With eleven regional offices throughout the world and technical expertise in dentistry, environment, and policy, the World Alliance for Mercury-Free Dentistry serves as a unique resource for nations working to implement the Minamata Convention’s amalgam phase-down measures. Learn more at <https://mercuryfreedentistry.net>

⁵ https://ec.europa.eu/health/scientific_committees/consultations/public_consultations/scher_cons_06_en

⁶ <https://wedocs.unep.org/handle/20.500.11822/31212>

recommendations against amalgam use promulgated by the National Health and Medical Research Council in 2002, recommendations that call for no amalgam use for:

- Pregnant women
- Breastfeeding women
- Children
- Persons with kidney disease

These recommendations are in line with the recommendations of many other countries (such as Canada, the United States, Tanzania, and Mauritius), although less than what the European Union is doing to protect these vulnerable populations: since 1 July 2018 EU law has ended amalgam use in children under 15, pregnant women, and breastfeeding mothers. These recommendations also comport with The Minamata Convention's standalone article on health and in the preamble places a priority on health concerns, "resulting from exposure to mercury of vulnerable populations, especially women, children, and through them, future generations."

As Australia moves toward ratification of the Minamata Convention, following the NHMRC recommendations will ensure compliance with the amalgam phase down requirement as well as the decision to accelerate the transition to mercury-free dentistry.

The Australian Government should also move to prohibit the use of elemental mercury recovered from Australian mercury waste treatment plants, from being used to manufacture dental amalgam for domestic use or export. It has come to our attention that at least one mercury waste treatment facility based in WA exports recovered mercury to Victoria specifically for this use.

Another mercury waste treatment facility in WA (BMT) stabilises its recovered mercury using a mercury sulphide conversion and sends the material for final storage at the Tellus facility in the Western Australian goldfields. In order to prevent more mercury being used domestically or exported and potentially ending in ASGM, all mercury recovered from treatment plants should be stabilised and sent for long term storage.

Thank you in advance for your consideration of our comments.