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National Toxics Network Submission on: proposed National Phase down of Mercury: Ratification of the Minamata Convention on Mercury

(Regulatory Impact Statement- RIS)

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The National Toxics Network (NTN) is a community based network working to ensure a toxic-free future for all. NTN was formed in 1993 and has grown as a national network giving a voice to community and environmental organisations across Australia, New Zealand and the South Pacific.

NTN is the Australian focal point for the International POPs Elimination Network (IPEN) and works towards the full implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) 2001 and other global chemical conventions such as the Minamata Convention on Mercury. NTN is a member of the NGO delegation to the POPs Review Committee which is the UN scientific committee assessing new POPs' nominations.

NTN represented Australian and global NGOs at the OECD Chemical Joint Meetings and was actively involved in the Intergovernmental Forum on Chemical Safety (IFCS), providing an Australian focal point for their INFOCAP information and capacity building program. NTN participates in the Strategic Approach to International Chemical Management and is part of the NGO delegation to the negotiations for a Mercury treaty.

<u>Australian Mercury Ratification and domestic consultation.</u>

The process of public consultation on Australia's process to prepare for ratification has been very poor. Despite many years of interaction with federal environment agencies on international chemical conventions and being long standing members of the Stockholm Reference Group, NTN was disappointed that it was not notified that the consultation process for the RIS was underway. NTN made our intention and desire to engage in this process clear, in person, during a meeting with senior Australian officials at the International Negotiating Committee (INC 7) in Jordan in March 2016. Detailed notes of the conversation were taken by Australian officials so it is especially disappointing that NTN were not notified of this process. NTN received no notification of the consultation 'tour' of Australian states by Federal authorities in February 2017. Details of the tour were posted on the agency website but few members of the public visit the website regularly and fewer search the

multiple levels required to locate the information. Accordingly, few, if any members of the public attended the meetings which appeared to be focused on industry and regulatory involvement. The RIS document suffers from the same focus on industry consultation and the questions posed in each section of the RIS reflect an preoccupation with industry views. In order to consult effectively in future the agency will need to establish a more comprehensive contact list and provide adequate advance notice of any consultation workshops being held. A post on the agency website is not sufficient. It is noteworthy that the consultation diagram at Fig 8.2 of the RIS only includes industry and the CSIRO.

Australia's mercury problem – industrial emissions

While the Final Regulation Impact Statement – Exposure Draft, December 2016 presents four options for the 'phase down' of mercury in Australia in advance of ratification considerations, the focus of proposed actions appears relatively ineffective to reduce mercury exposure in Australia (noting that mercury emissions in Australia do not remain entirely within our borders as they are, by nature, transboundary emissions). The reference to *possible* future use of BAT/BEP guidance for emission and release sources appears to be a minimalist position and lacks ambition.

While Option 4 is supported by NTN as the best of a poor group of options, this Option clearly lacks ambition and will have limited effect on actual mercury emissions in Australia. The agency needs to propose far more ambitious regulation of mercury emissions and releases in Australia and a more aggressing approach to reducing exposure of humans and ecosystems.

Before addressing the detail of the RIS and specific elements of regulation it is important to look at the bigger picture of mercury pollution in Australia.

Industrial emissions of mercury account for the majority of mercury pollution in Australia whether directly to atmosphere of as releases through solid residues of industrial processes disposed in landfill or as road base (RIS p 30). The following examples are based around Western Australia, which as demonstrated in the map at Figure 3.4 of the RIS, has the highest intensity of mercury pollution compared to other states (which is not to say they do not have significant mercury problems – they do). Western Australia has a very high emissions profile dominated by the Gidji gold ore roaster in the goldfields, the alumina refineries in Kwinana and the south west of the state and the Collie coal fired power plants. The map at Figure 3.4 confirms this emissions profile. These facilities should be regarded as priorities for action if Australia is serious about reducing mercury pollution.

The Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM) Gidji roaster claims to have replaced its furnace with an ultra - fine milling process in late 2015[1] to dramatically reduce its mercury emissions (although the mercury would be transferred to the mine tailings and

[1] Office of the Environmental Protection Authority, Annual Report 2013-2014. Government of Western Australia.

dumped nearby). NTN has received unconfirmed industry reports that this alternative process has not been successful. This is of enormous concern considering that the Gidji roaster has been the largest point source of mercury emissions in Australia for decades and possible the largest in the world.

The chart below is based on information compiled from the National Pollution Inventory (NPI) and confirms the massive emissions and releases of mercury from this point source since records were required to be provided to the Federal Government. Mercury releases or transfers were not required to be reported by the Federal government until 2008-2009 and are there not included in the chart below before that time. Even without taking the releases for that period into account the Gidji roaster has produced approximately 71,000 kg of mercury pollution in the decade where records have been provided.

The record of mercury emissions and releases since the facility was commissioned in 1989 is not available but estimates based on the data below suggest approximately 106,000 kg of mercury emitted or released prior to the 2004-2015 reporting period for a conservative combined total of 177,000 kg of mercury between 1989 and 2015. Clearly this has to be a priority for action by the Federal government.

The comments in the RIS at page *28 "However, recent upgrades to the Gidgi gold roasting facility, north of Kalgoorlie, Western Australia, have reportedly reduced the amount of mercury emitted, with a decrease of five tonnes per annum of mercury emissions, approximately a 90 per cent reduction on historical emission"* must be independently verified as there is now some doubt whether the proposed ultra-fine mill is operational or effective. The information provided in the RIS about the success of this 'emission reduction program' is based on a single media release from the State Environment Minister but no data is provided.

Confirming whether the ultra-fine mill is operational and effective is a matter of some urgency as the RIS goes on to state that "*the state licence for the facility no longer requires reporting of mercury emissions."*

The RIS also notes that because of the 'reduction' in emissions at the Gidji Roaster that the emissions from the Gidji roaster are not considered in the cost benefit analysis of the RIS (footnote at page 28). However as noted by the Western Australian EPA, if the ultra-fine mill is operational and effective then the mercury previously emitted to atmosphere will now be released to tailings ponds – presumably in the same quantities. In essence the Gidji roaster mercury pollution will be transferred from airborne emissions to solid waste which can volatilise to atmosphere or leach to groundwater. *It is not clear why this has not been acknowledged and included in the RIS cost-benefit analysis.*

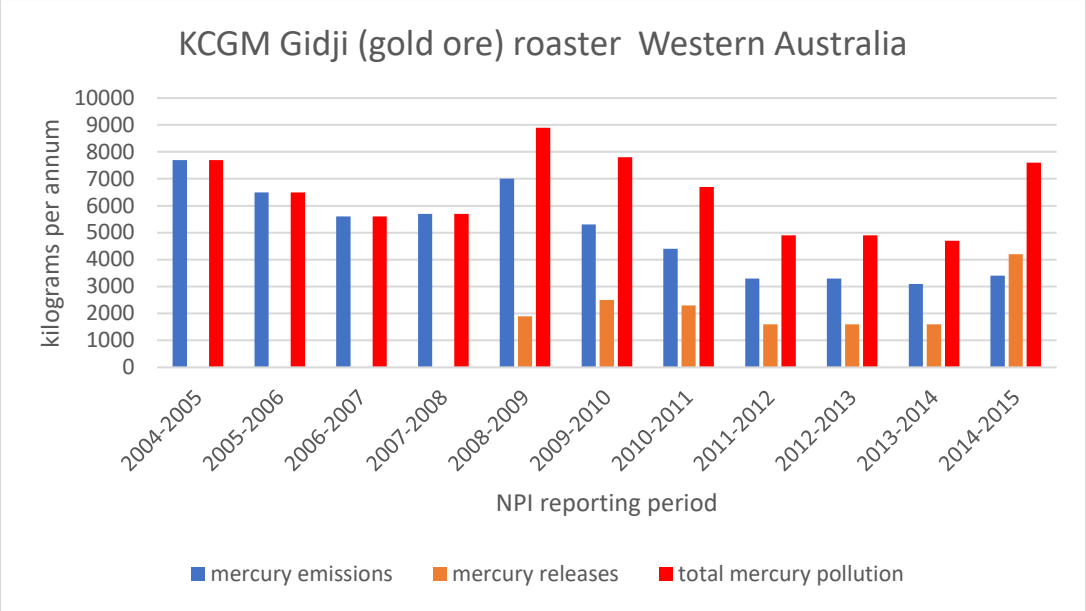


Figure 1 NPI data compiled by NTN

Figure 2 Gidji roaster and tailings ponds. source Google

The Western Australian alumina refineries also have a considerable mercury problem. Aside from the NPI reported emissions of mercury, which are substantial, NTN has been approached by workers from the refineries with anecdotal evidence that, during pipework maintenance, large quantities of elemental mercury entrained in the ore processed by the Bayer method, spill onto the ground. Mercury 'sniffers' or detection instruments have also been installed around work stations in the refineries due to the prevalence of mercury vapor from the process. The map at Figure 3.4 shows in red the location of the alumina refineries in WA. (RIS p 27)

Industry documents also note the high mercury emissions to be expected from alumina production of around 480 kg a year[2] for a single facility. The Alcoa Pinjarra refinery proposed to increase its atmospheric mercury emissions during an expansion of the facility.

[2] Alcoa Australia (2007) *Pinjarra Alumina Refinery Efficiency Upgrade Emission Reduction Program Alcoa World Alumina Australia December 07*

Large volumes of mercury are also deposited in the 'red mud' tailings ponds associated with the all alumina refineries (note these do not appear in the chart at Figure 3).

Figure 3 Mercury emission distribution Alcoa Pinjarra alumina refinery

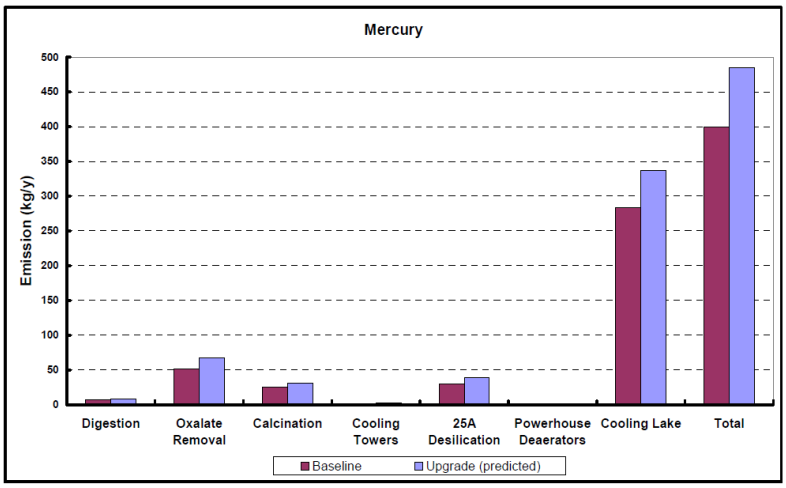


Figure 2: Comparison of Mercury Emissions for Baseline and Upgrade Scenarios

The four alumina refineries in Western Australia create a combined emission and release of mercury in excess of 2000 kg per year according to NPI estimates.

Figure 4 Alcoa alumina refinery and red mud tailings dumps, Pinjarra WA

Coal fired power in Western Australia may also represent a significant source with the Muja power station at Collie emitting and releasing over 200kg of mercury per annum according to the NPI. There have also been several official reports of mercury contamination of the Collie River although none of the reports have linked the contamination to the thermal power station which is the only mercury emitting industry in the area.

Mercury waste

Article 11 of the Convention creates obligations for parties to manage their mercury wastes. The definition of mercury waste will be threshold concentration based and defined by the Conference of parties although work is underway to develop such thresholds. Australia is currently not in a position to manage mercury waste in an environmental sound manner and relies almost completely on landfill. There may be a fraction of mercury waste in Australia that is burned in incinerators or cement kilns. These are very poor disposal options due the volatility of mercury and its preference to enter a vapor phase when subject to combustion. This means that incinerator pollution control devices are relatively ineffective at controlling mercury emissions. Cement kilns have a much lower standard of air pollution control than state of the art incinerators and have less ability to trap mercury vapor. Landfill, incineration and cement kilns are not suitable for mercury waste disposal.

Australia has a system of varying state based waste guidelines which are generally based on landfill acceptance criteria. The problem with this system is that it presupposes the management option for the waste (i.e. landfill). By designing the definition of waste around a solitary disposal option, other options for management are limited. Similarly, the threshold concentration for mercury in waste is currently determined at state level based on landfill leachate criteria without other consideration for how the waste may be managed. Landfill leachate tests of mercury bearing wastes do not reflect the reality of landfill conditions which vary according to pH levels, salinity, oxygenation and a range of other factors. In the US, a Toxicity Characteristic Leachate Procedure (TCLP) is applied which at least uses a weak acid leach to simulate landfill conditions. In Australia, we use an Australian Standard Leachate Procedure (ASLP) using water as a leach agent which bears little to no relation to landfill conditions and underestimates releases of mercury and other toxic metals from landfill disposed wastes.

The Australian system is ill-prepared to manage mercury waste. While there is currently no threshold concentration established by the Minamata Convention, its development has begun. NTN proposes that a threshold to define mercury waste is 1 ppm or 1 mg/kg.

Mercury has one feature which makes it easier to extract from waste mediums such as soil, concrete and other solid matrices. Its tendency to convert to vapor at low temperatures allows it to be ‘distilled’ by technologies such as vacuum distillation and reduced in concentration to 1ppm or less in the original waste. This type of technology is currently in operation in Europe (see fig 5).

Australia needs to urgently review its position on mercury waste thresholds as the combination of contaminated sites waste and mining waste may result in large volumes of mercury waste arising depending on the final threshold determination. Mine tailings such as those from the alumina industry, the gold industry and other mining operations may be subject to the requirements of the Minamata Convention as the definition of mercury waste “*excludes overburden, waste rock and tailings from mining, except from primary mercury mining, unless they contain mercury or mercury compounds above thresholds defined by the Conference of the Parties.”* (Article 11, 2.)

The final threshold concentration determined must also be considered in relation to contaminated sites and the definition of a mercury contaminated site. For example: If a standard for residential land is established where mercury above 10 ppm in soil is considered contaminated with remediation required then a significant amount of soil may be excavated from the site and should be defined and treated as mercury waste. However, if for example, a waste definition threshold of 50 ppm mercury is established and the soil removed from the site has a Hg concentration of 49 ppm, then it will not be treated as 'mercury waste' even though it exceeds safe health standards to live on. The fate of that material may then be environmentally unsound. It may be used for construction, road base, landscaping, site fill and so on resulting in the spread of mercury contamination into the ecosystem and potential exposures to the population. These issues must be considered before thresholds are determined. Current mercury levels for a range of land use scenarios in the Australian Contaminated Sites NEPM are completely unjustifiable on health and scientific grounds and require urgent revision. The UK has a 1 ppm soil mercury threshold for residential land compared to Australia with a 200 ppm level for residential land and 4000 ppm for industrial land[3].

NTN proposes that waste containing mercury above 1ppm be managed in an environmentally sound manner (not buried or burned) preferably by removing the mercury from the matrix by vacuum distillation or similar. Elemental mercury recovered by such techniques must NOT be allowed to be traded on the international market and should be subject to permanent storage at a purpose-built facility which Australia does not currently possess.

Australia should follow the lead of the US and EU in banning export of elemental mercury or cinnabar immediately. The rationale for an export ban is, among other matters, to prevent global pollution and human exposure caused by ASGM activity in neighbouring countries such as Indonesia and Papua New Guinea where the practice is common. We should not, as a nation, be contributing to this terrible problem by cleaning our own waste and contaminated sites of mercury and then inflicting the problem on our neighbours for a profit.

[3] National Environment Protection Council. (2011) Schedule B1 Guideline on Investigation Levels for soil and Groundwater. Table 1A (1) Health investigation levels for soil contaminants. Australian Government

Figure 5 Indirectly heated Vacuum Distillation unit. (Source: econ industries GmbH cited in UNEP/ISWA 2015)

Storage (Article 10 and 11)

Australia currently has no suitable site prepared for the storage of elemental mercury or mercury waste (both may be determined to be mercury waste). If an export ban is established in Australia, then most elemental mercury will be retired from the market to become mercury waste and subject to the obligations outlined in Article 11 of the convention. If mercury continues to be exported from Australia, then very similar storage facilities for *interim* storage will be required as per the requirements of Article 10 of the Minamata Convention. Storage facilities must be carefully constructed and constantly monitored to prevent the escape of mercury and vapor as they are stockpiled for export. If Australia persists with the export of this toxic metal there may be a requirement to build multiple interim storage sites depending on the source of the mercury, the export point (port, airport etc.) to ensure there is no exposure to workers, the public or the environment.

The U.S. Department of Energy developed comprehensive guidance (U.S. DoE 2009) on the practical and administrative measures required to conduct these activities when dealing with thousands of tonnes of elementary mercury that was destined for permanent storage. The detailed guidance including packaging and loading procedures, vehicle unloading and interface at the storage facility, transfer of mercury between vessels and final packaging guidance for storage. Environmental monitoring procedures throughout the process are also detailed. Packaging of smaller quantities of mercury is usually in sealed metal flasks containing 3 litres of mercury in the US.

Figure 6 Examples mercury packaging - standard 3 litre elemental mercury flasks individually and packed in a 49 x 3 litre crate will built in spill tray. Source: US DoE (2009)

When gathered in sufficient numbers and checked for structural integrity (including seals) the flasks can be combined into crates with built in spill trays for racking.

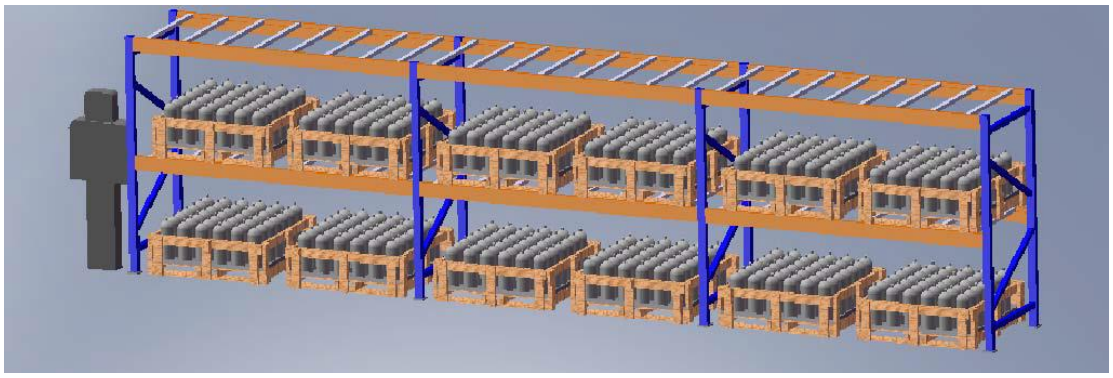


Figure 7 Racking of crates containing 49 x 3 litre mercury flasks for permanent storage. Source: US DoE (2009)

The seismically rated racks are located on a sealed, sloped floor (3^{o} slope) toward the centre of the room to allow easy visual inspection and containment of leaks. The racks also have fire suppression devices and usually do not exceed 3 metres in height. Depending on the quantity of elemental mercury recovered it may be necessary to use larger volume packaging than standard 2.5 litre or 3 litre flasks. In these cases, specially constructed I metric tonne containers have been developed to meet the stringent transport and long term storage requirements

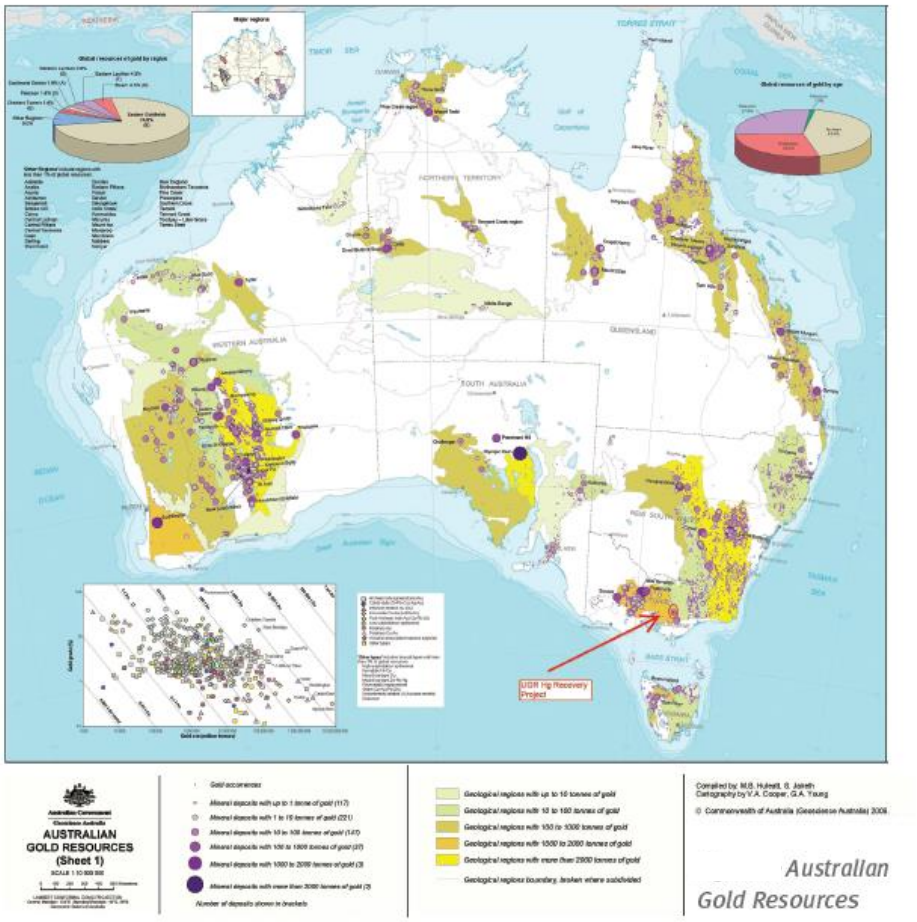
Figure 8 An example of 34 kg steel flasks and a 1 metric tonne steel storage unit. Source Bethlehem Apparatus Co. Hellertown, PA.

Contaminated sites

Australia has a significant but unquantified number of mercury contaminated sites which are emitting mercury to atmosphere, soil and waterways. Many of these sites are legacy sites from the 19th century gold rush era when mercury was used extensively for amalgamation of gold particles in a similar manner to artisanal and small scale gold mining (ASGM) practiced around the world currently.

One Australian company specialising in remediation of mercury contaminated sites (Hg Recoveries Pty Ltd) has identified more than 470 historical gold mining sites across Australia, and conservatively estimates, based on recent research in the State of Victoria notes that, about 900,000 tonnes of mercury was lost to the environment in the last 150 years. If applied across Australia's landmass, it equates to 117.5 kg per hectare. Of this amount of mercury Hg Recoveries Pty Ltd estimates that it is possible to recovery around 500,000 tonnes of mercury[4].

Figure 9 Australian gold resources and potential contaminated sites.



[4] Correspondence from Hg Recoveries Pty Ltd to Head, UNEP Chemicals Branch DTIE 12/9/2011

The gold rush in Australia took place on the west and east coasts with many legacy sites remaining on both sides of the country. The mercury contamination corresponds with gold mining areas highlighted in Fig 5.

The co-location of gold deposits and mercury contaminated sites is given further credence by reports in Western Australia that more than 20 former battery sites (gold ore crushing machinery) from the 1800's and early 1900's are contaminated with mercury[5]. Hg recoveries has also commenced a project to attempt to recover some 4900 tonnes of 'feral' mercury from gold mining from the Upper Goulburn River Catchment in the state of Victoria[6].

Oil and Gas industry

During negotiations for the Minamata Convention the global oil and gas industry secured an exemption from listing as *source* of mercury under Annex D of the convention. However, this does not exempt the industry from environmentally sound management of mercury and mercury waste arising from its operations or from reducing its emissions and releases. The oil and gas industry is subject to Article 8 (emissions) and Article 9 (releases) of the convention. Australia must include the oil and gas industry (including the fracking industry) in its National Action Plan to reduce or eliminate mercury emissions and releases. Oil and gas production is well known to generate significant quantities of mercury which are entrained with the fossil fuels they extract. Failure to remove the mercury during extraction and refining causes serious damage to some elements of the refinery and extraction equipment – especially aluminium components which become brittle and fail when exposed to mercury. The industry has long invested in mercury removal equipment to protect its infrastructure.

The fate of this elemental mercury remains unclear but it is likely to be traded on the open market given the lack of current restrictions. Some of the mercury in fossil fuel production facilities ends up as refinery solid/sludge waste or as emissions from flared product. Yet more may be destined for incineration at locations such as Port Hedland in WA which accept drilling muds from the industry which are contaminated with mercury raising the prospect of 'displaced' emissions from incineration not directly linked to the oil and gas industry facilities.

The onshore oil and gas industry must also be held accountable for its mercury emissions and releases which are not exempt from the obligations of the convention. There should be a focus on the fate of mercury removed from the oil and gas production facilities and field extraction sites.

Section 6.3.6 of the RIS notes that the (offshore) industry has 'release' limits and should not therefore be affected by implementation of measures proposed in the RIS. However the RIS is silent on managing mercury emissions from flaring and refinery waste incineration. Australia has previously reported to the Minamata Convention Interim Secretariat that mercury emissions from oil refining and combustion is around 100 kg a year and releases

[5] Pownall, A., (2013) Mine waste toxins found near homes. *The West Australian*, June 6 2013.
[6] Correspondence from Hg Recoveries Pty Ltd to Head, UNEP Chemicals Branch DTIE 12/9/2011

are around 100 kg a year[7]. There is no information on emissions from the gas sector. It also makes no comment about the fate of recovered mercury from this sector and whether it is sold on the global market. The scale of the issue is significant. In the Netherlands, in 1995, 6 tons[8] of mercury were recovered from domestic gas sludge or waste, while 85 tons were recovered from imported waste. These issues must be addressed in the context of the Australian gas and oil sector including the accounting for and tracking of mercury sold post-recovery.

Cement production

The RIS suggests that the cement industry produces around 1% of total mercury emissions in Australia which is significant but overshadowed by the sheer volume from other industrial sources. However, NTN is aware that there are proposals to burn municipal and hazardous waste as alternative fuels in cement kilns around Australia. Some facilities have been burning such waste for some time. It is expected that as the volume of MSW and hazardous waste burned increases then so will the mercury emissions given that both forms of waste contain significant quantities of mercury. This must be monitored as part of emissions estimates for Australian cement producers as the mercury loading in waste is significantly higher than in the raw products they process to produce cement.

Pesticides

The approach proposed in the RIS for dealing with the manufacture and use of the mercury based pesticide Shirtan is too weak. The Great Barrier Reef is subject to a variety of environmental pressures such as coral bleaching through global warming and crown of thorns starfish impacts on coral. The fate of a significant portion of the mercury used in the sugar cane fields in the form of Shirtan fungicide is to enter the sediments of the Great Barrier Reef. As noted at page 68 of the RIS the reason that sediment in the Great Barrier Reef has mercury levels 10 times higher than background is almost entirely related to the leaching of Shirtan from the cane fields. Given that the use of Shirtan contributed 5 280 kg of elemental mercury a year to the environment (a figure comparable to the Gidji roaster emissions) its use should be phased out by the end of 2017. It is unacceptable that such a large quantity of mercury is allowed to pollute sensitive environmental receptors when there are locally available non-mercury alternatives available on the market now. The federal government should act immediately to regulate the transition from Shirtan to the available commercial alternatives by the end of 2017.

Dental amalgam

The approach proposed for the phase down of dental amalgam is weak and lacks ambition. The RIS notes at page 34 that "Mercury-containing dental amalgam is used for some dental fillings. Its use in Australia comprises approximately 25 per cent of new fillings." While the EU has determined that dental amalgam is now banned for used in fillings for children under

[7] (UNEP (2011) UNEP(DTIE)/Hg/INC.3/5 Releases of mercury from the oil and gas industry. Intergovernmental negotiating committee to prepare a global legally binding instrument on mercury Third session Nairobi, 31 October–4 November 2011

[8] The word "ton" refers to metric tons.

15 and pregnant or breastfeeding women, the RIS fails to note that a large amount of the mercury amalgam used in Australia is via the state school dental clinics. The Australian government should immediately ban the use of mercury amalgam fillings through the state school systems and ensure this practice is no longer subsidised by taxpayers.

Those least able to afford dental care and those most vulnerable to the impacts of mercury on their health (i.e. children in state schools) should not be required to have mercury amalgam fillings as part of a state of Federal sanctioned program.

The RIS proposal to install traps and separators at dental clinics fails to address the problem at its source. The proposed rationale for installing these (pollution control) devices is to keep the mercury waste out of the sewer system and landfills. Mercury captured with these devices will either be sent to landfill or recovered and sent back into use as dental amalgam for state school children and the public dental clinics (for pensioners and others on welfare entitlements who cannot afford private dental rates).

This is an end of pipe 'solution' for a problem that could be dealt with far more expediently by an immediate phase out of dental amalgam in Australian dental clinics. The trends show that the 75% of the Australian public have chosen the health benefits of avoiding dental amalgam and it is unconscionable that the mercury dental amalgam industry is being propped up using the state school systems and public dental clinics for pensioners and low income earners. Instead of investing in dental waste traps to collect, recover and recycle the claimed 1284kg mercury for dentistry, it is entirely logical to phase out mercury amalgam completely such as to avoid the costs of installing and maintain these devices and managing the mercury waste they recover. Many people are choosing to have their old amalgam fillings removed to reduce their mercury exposure. For the smaller number of dental clinics that conduct the amalgam removal process, the installation of the mercury waste traps are appropriate. NTN calls for an immediate phase out of dental amalgam in Australia.

Mercury added products

Lighting and batteries

Mercury containing lighting products such as fluorescent tubes and CFLs must be subject to mandatory recycling until and beyond any phase-out date. Industry importing or manufacturing these products should be subject to a mandatory extended producer responsibility (EPR) scheme to ensure that they cannot continue to externalise the costs associated with the environmental and health damage caused by these products. The current voluntary FluoroCycle program is promising but limited to a very small fraction of the waste lighting market with the 1.7% subject to recycling accounting for recovery of 25.9 kg (RIS page 87) suggesting that approximately 1200 kg remains unaccounted for and most likely ending up in landfill contributing to vapor emissions and groundwater contamination.

An EPR system also need to be applied to those manufacturers and distributors of batteries and medical devices containing mercury to ensure that the costs associated with the impacts of mercury are internalised within those companies. Any increase in the price of

these mercury added products as a result of such programs will send the appropriate market signals and reduce market share in favour of mercury free alternatives.

Summary

While NTN supports the adoption of Option 4 in the RIS as it is the strongest option of a very weak group of options. However it is clear that the RIS is neither sufficiently ambitious nor comprehensive enough to address the bulk of mercury emissions and releases currently occurring in Australia. The mining industry is the major producer of mercury waste, releases and emissions yet no stringent regulatory measures are proposed to manage that mercury pollution. The uncertainty over the Gidji smelter ultra-fine milling replacement for the roasters must be resolved as it would have a significant impact on the RIS cost benefit calculations if it is true that the roasters are still operating as they have in the past.

Mercury emissions from the alumina industry are significant and should be addressed as a matter of priority. Continued expansion of alumina refineries will increase mercury emissions from these sources. Shifting emissions from the stack to solid residues and tailings ponds does not constitute a net reduction in mercury pollution from the sources – it merely transfers to pollution to another environmental medium.

The issue of contaminated sites remains unaddressed despite the requirements of Article 12 of the Minamata Convention. Remediation of mercury contaminated sites may recover hundreds or thousands of tonnes of mercury. NTN proposes that mercury recovered from remediation of contaminated sites, mercury waste, oil and gas and any other source should be banned from export onto the global market for uses allowed or otherwise under the Minamata Convention. The EU and the US have banned exports of mercury and Australia should follow their lead. In the interim the Federal Government must resource the Customs service to focus on imports and exports of mercury in Australia so that the public can be informed of the scale of the mercury trade into and out this country. Permanent storage/disposal sites that prevent mercury from entering the environment must be established in Australia and should be the destination for all elemental mercury recovered in Australia.

The continued use of dental amalgam in Australia generally and in public schools and low income dental clinics specifically should be brought to an end immediately.

The use of Shirtan fungicide should have a maximum phase out date of December 2017 but preferably it should be deregistered by the APVMA sooner than that. Alternatives are available and should be used.

Public consultation on the Minamata Convention in Australia must be dramatically improved immediately. NTN is currently and has previously been a member of the Stockholm Reference Group for many years. It engages with a broad cross section of stakeholders. While it has been downgraded in recent times from periodic face to face meetings to a teleconference it still brings a broader group of stakeholders together to discuss key issue related to that convention. NTN proposes that a national Minamata

Convention Reference Group be established immediately with civil society representations from the public health sector, the environment movement and include worker representation via the appropriate union bodies. It is unacceptable to include only industry in major consultation opportunities.