Australian Sustainable Business Group's

Submission on

Review of NSW's Resource Recovery Framework

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Sydney, Brisbane

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EXECUTIVE SUMMARY

The Australian Sustainable Business Group (ASBG) welcomes the opportunity to comment on the *Review of the Resource Recovery Framework* (RRF).

ASBG represents a broad range of industries and businesses, consequently represents the business waste generation, recycling waste management areas and the concerns affecting them. Given the scale of materials processed, the variation in treatment and processing methods and also risk variations the scope of the RRF review is considerable. As a consequence, this submission focuses largely on the questions asked in the issues paper.

Key issues and recommendations include:

- Expand use of soil conditioners, for specific land areas, such as denuded farmland. All published RROEs can be applied anywhere in NSW, hence the most sensitive land is the trigger. Certain low risk materials have high concentrations of minerals which are currently replaced in farmland by fertilisers. By specifying land zones, such as denuded farmland, and having more specific delivery controls such an approach can help farmers and reduce waste to landfill.
- Specific use of scientific methodologies to set criteria which can vary according to land areas and their local environments. Some extracted materials come from high background areas and may breach their RROs even if going back into the same soil types.
- Publish the scientific methodologies with specific cases used to make RROEs. ASBG provides evidence of ALARA being used rather than good scientific methods and risk weighted approaches.
- Improve environmental protection by increased policing, teaming with landowners etc, use and support of industry based quality control methods and better forewarnings of emerging contaminants.
- Reform environment licensing and planning legislation to remove road blocks and assist emerging, new and innovative processes at pilot plant and small scale commercial demonstration plant scales
- Ensure the RRF is open to all technologies and process that can meet the scientific based environmental conditions and avoids picking 'winners'.
- Implement the End of Waste provision for wastes, which meet risk criteria, to avoid the need for Waste Storage licences at post producers' sites. It will also draw the line of when a RRO material is a waste or can be treated as a product, reducing EPA's oversight.
- NSW EPA to adopt the standard AS 4964 for asbestos measurement.
- All methodologies used to make RROE criteria are transparent and based on good scientific methods, which should be ring-fenced from other influences, such as public or local opinion.
- NSW Waste Classification Guidelines to add in general fill material criteria, but where these limits can be subject to exemptions where specific RROEs are used for lower risk source materials.
- Improved sampling methods which are standardised—to remove sampling from RROs—but also accept demonstrated statistical methods.

Given the scope of the review there are many case studies and other supporting documents, member experiences and other details which are better conveyed on a case by case basis.

RECOMMENDATIONS

ASBG Recommends

R1 The use of Resource Recovery Orders and Exemptions (RROE) to use a risk-based approach include:

- Expanding soil conditioner use to specific land areas, such as denuded farmland, where specific minerals are lacking, to replace fertilisers
- Scientific methodologies to use as engineered fill in specific land areas which also consider background levels of contaminants
- Improve the consistency of the waste approval process by clarifying its approach.

R2 The EPA improve and expand its policing of RROEs by:

- Improving the legal certainty that landowners / occupiers will be protected from prosecution if there is good evidence of other parties being involved
- Improving the trust and cooperation between landowners / occupiers and the EPA
- Assisting consumers on how to gather evidence for use by the EPA.

R3 The EPA:

- Recognise the quality control systems used by Processors and Consumers in managing compliance in the Resource Recovery Framework including reputational risk rankings used by the sector.
- Where appropriate recognise, and where appropriate publish photographic minimum standards for consumers to use.
- Require underperforming Processors and Consumers to implement quality control systems based on their performance and risk ranking.
- Support industry sector developed quality control systems, where they are fit for purpose and if followed provide a high level of compliance.

R4 The EPA publish a list of expected emerging contaminants and the extent of knowledge about their environmental and human health harmfulness.

R5 The:

- Reforming the Environment and Planning legislation to aid in the siting and building pilot and commercial demonstration of new and recent resource recovery projects and processes.
- Ensuring the Resource Recovery framework is open all process types as long as they meet the environmental scientific requirements.

R6 The Resource Recovery Framework include the End of Waste classification for appropriate RRO materials.

R7 The EPA and NSW Government adopt a concentration and risk-weighted based approach to asbestos waste, by adopting the criteria under AS 4964.

R8 The EPA introduce the following transparency documentation and practices:

- A detailed guideline on how RROEs (specific and generic) are processed, based on strong scientific principles.
- Publications on the assessment or reassessment process of RROEs, detailing the scientific justification for the criteria provided.
- A guideline for the use of potential fertilizer replacement and management where high levels of background contaminants are present.

R9 That:

- The Resource Recovery team consider the solutions provided to better manage third parties and transporters in the chain from producer to consumer.
- The Waste Classification Guidelines to include general fill material criteria in addition to landfill acceptance criteria, along with a published means to gain exemptions where appropriate.
- Uses sampling guidelines based on both standard criteria or demonstrated statistical methods to be used for setting sampling across all RROEs.

1 INTRODUCTION

The Australian Sustainable Business Group (ASBG) welcomes the opportunity to comment on the *Review of the Resource Recovery Framework* (RRF).

The Australian Sustainable Business Group (ASBG) is a leading environment and energy business representative body that specializes in providing the latest information, including changes to environmental legislation, regulations and policy that may impact industry, business and other organisations. We operate in NSW and Queensland and have over 100 members comprising of Australia's largest manufacturing companies and other related businesses.

ASBG represents a broad range of industries and businesses, consequently represents the business waste generation, recycling waste management areas and the concerns affecting them. Business wishes to reduce waste to landfill, recycle and reuse wastes made and supports government policy in this direction. ASBG has been providing submissions on waste and resource recovery for over 20 years. Our website, under *Policy*, then *ASBG Submissions* contains our submissions dating back to 2009. ASBG also provides its ASBG's Framework Approach to a Revamped/Reengineered Recycling System, which while written in 2018, is relevant for the Review and is presented in Appendix 1.

The Issues paper covers many of the issues with the RRF well, and consequently provides ideas and solutions to these issues. These include:

- No formal avenue to enable trials of recovered waste or processes: This is discussed in section 3.2 Benefits of an "End of Waste" provision
- RROE revocation is not transparent and may undermine confidence for investment. This is discussed in Chapter 4.
- Preference for general (published) RROEs: provision of more symmetrical information to the market may help to better level the playing field. This could extend to publishing all specific orders and exemptions that have been approved. This is roughly supported and covered in sections 5.2 Waste Classification recommending that a fill criteria be added.
- The resource recovery framework is difficult to understand. ASBG agrees, though we have been providing waste classification, waste tracking and RROE seminars and webinars for many years to the market.
- Application and assessment process for specific exemptions or orders, and transparency. This is covered in section 3.1 especially on environmental and planning laws with a focus on fuel burning.
- The time frames taken to submit and assess an application can be too long. ASBG agrees and looks forward to timeframes placed around applications. Though this is linked to the transparency issues associated in preparation and amendments of RROEs.
- Lack of transparency over the RROE approval process is covered in section
- Costly to comply: Sampling and analysis costs are a concern so efficient statistical models and methods are required. More on this issue is covered in section
- Improved information systems on RROE usage to improve the system. ASBG supports better data management processes, though limiting the additional reporting requirements as this adds to costs. With good data a far better picture of RROE performance can be ascertained and fed back into quality control system as discussed in section 2.1.3 Quality Control.
- Compliance action is more likely to be borne by the consumers of recovered waste than by others in the supply chain. ASBG discusses this issue in its policing of RROEs in section 2.1.2.
- Enforcement using a level playing field. A level playing field is useful to an extent, but exceptions are required where specific land areas with specific mineral criteria are identified. This is discussed in sections 5.2 and 5.2.1.

- Processors of waste are seeking improvements to the quality and accuracy of waste classification reports accompanying waste at their facilities. Again ASBG runs workshops on these topics and would like to work with EPA to increase the reach of such training.

Given the scale of materials processed, the variation in treatment and processing methods and also risk variations the scope of the RRF review is considerable. As a consequence, this submission focuses on the questions asked in the issues paper.

Resource recovery is by far the main way in which most waste materials are beneficially reused in NSW. The Issues paper states 9 Mt in 2019-20 of wastes are beneficially reused under the Resource Recovery Order and Exemptions (RROE) framework. In practice while the RROEs can apply to fuels, these are few, so the vast majority is beneficially reused as soil amendments, engineered fill or blended into product such as concrete. Nevertheless, the Resource Recovery Framework is an essential legislative framework, which should continue the main method for beneficial reuse of wastes and look towards expanding its reach, by increasing the methods for beneficial reuse in a more granular manner. Currently, most RREs apply anywhere in NSW. ASBG contends that a more targeted approach, which specifies particular land areas, such as denuded farmlands, with appropriate controls would not only provide benefits, it will also increase recycling rates.

A key issue in the Resource Recovery Framework is balance between environmental protection and recycling and reuse. Environmental protection is currently seen as such an important issue, scientific and evidence based risk approaches can be overruled by public views based on emotion to many types of resource recovery, especially Energy from Waste and asbestos wastes. ASBG is concerned that reasonable scientific risk assessment is being replaced by this positive feedback loop between the media, fear based campaigns and the EPA taking in such concerns and adding additional safety layers. This simply confirms the concerns feeding back on itself. Resource Recovery is also influenced by this process resulting in more waste directed to landfill rather than being beneficially used. Consequently, the EPA and DPIE should stick to scientific and evidence based principles where it has the opportunity do so and advise against fear based campaigns and falsehoods which drive the media. Consistency in application of environmental policy by the EPA is an ongoing issue and the RRF processes are also affected. Consequently, transparency of the processes used to set RROE, both generic and specific should aid in a more uniform approach.

To ensure environmental protection is maintained ASBG considers such risks can be better managed using:

- Increased and targeted policing
- A range of quality control methods adopted by the processers and consumers respective to their risks
- Forewarnings of potential and likely emerging contaminants

While the focus of this submission is on helping to improve the Resource Recovery Framework, the more immediate issue is need for landfill space in the Sydney area, which is perhaps on the edge of the scope of this review. NSW's Waste and Sustainable Materials Strategy states Sydney requires 3 Mt p.a. of new non-putrescible landfill space by 2030 as it will run out by 2028. It also states it would take about 10 years to gain planning consent and open a new landfill, so we have missed that deadline. As a consequence, Sydney will become an increasing large exporter of non-putrescible waste. Export of asbestos waste is likely as most of the limited landfills accepting commercial quantities of it will likely be filled in the next 6 years. This will definitely increase landfilling costs and increase risks across NSW,

but could result in potential non-acceptance or super charging of Sydney's Waste elsewhere. While the focus is on reducing waste to landfill and the RRF is a major means to do this, we simply will not have enough landfill space to accept the residuals from RRO processing. If landfill space is not remedied soon then the RROE process will become highly constrained, have limited and expensive residue disposal options available over the next 5 years.

This submission is based on information from ASBG members and experiences gained over 20 years in operation.

2 ENVIRONMENT AND HUMAN HEALTH PROTECTION

Overall ASBG and its members strongly support the need for environmental and human health protection. Identifying an appropriate concentration level of contaminants in a land applied resource recovered material should be based on good scientific knowledge. Where this is lacking the EPA applies the Precautionary Principle, resulting in additional safety margins where knowledge is less well known, such as emerging contaminants. Most metals and simple inorganic species, e.g. calcium, pH etc. the environmental limits are known well enough not to have required changes for at least 10 years. The criteria set for resource recovery on these known substances tends to be based on land application, which can apply to any part of NSW. As a consequence, low limits are used to match the most sensitive receiving environment. There are large tracks of farmland which have been denuded of essential minerals. However, the way the current Resource Recovery Framework (RRF) operates does not accommodate these differences in land quality and its requirements. ASBG members have a number of wastes which would replace fertilisers and at a much lower costs, but are hindered by the current RRF approach. This is discussed in section 2.1.

Wastes can, by their nature of often being a negatively valued material, improperly and or illegally managed resulting in environmental harm outcomes. The high cost of waste disposal largely due to high levies and environmental controls, is also a driver for illegal activity. As a consequence, the EPA has a significant policing role as a direct result of the cost incentives, which is discussed in section 2.2.

To further assist the RRF review ASBG then focuses on the use of quality control methods to better manage the compliance and variability of RRO material from processers and how this may work. This is covered in section 2.3.

2.1 Types of risk-based approaches

What other risk-based approaches, sustainability principles or criteria could be used to assess and manage the environmental and human health risks of resource recovery?

There are a number of risks of harm to the environment and human health to consider under this general and broad issue including:

- Concentration and application criteria
- Policing
- Quality control

Due to the use of RROEs for land application rather than for combustion or thermal processes (there are a few, but volume wise insignificant), this submission will focus on land.

2.1.1 Concentration and Land Application Criteria

Environmental risk is generally considered more sensitive than human health risk. In other words, if a contaminant has a human health risk its environmental risk will be in general higher. In fact, there are many substances which are phytotoxic, but at these concentrations are well below human health toxic risk levels such as zinc. So this section will focus on environmental risk applied to land.

In addition, the focus in this section, will be on contaminants of well-known risk and known acceptable concentrations levels, with emerging substances discussed later.

The Resource Recovery Framework (RRF) needs to better balance these known risks with resource recovery, as both are objectives of the EPA under the POEA Act.

Section 6(2) states:

> *(2) For the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs--*

Noting that economic considerations are to be included in decision making. ASBG notes the risk-weighted approach is also derived from section 6 POEA Act, as part of the Precautionary Principle. However, the cost impact of ultra-low[1] or risks-adverse approaches are rarely considered, perhaps under a Regulatory Impact Statement assessment, but most tend to focus on Government costs not or very lightly on the costs of those who are being regulated. ASBG considers it would be better if the EPA can define its risk-weighting approach in scientific terms. However, EPA approach appears to be based on *As Low Reasonably Practicable* (ALRAP), where practicable is not defined and this approach is rather subjective.

Additionally, obtaining Specific RROEs, Specific Immobilisation Approvals and other waste related matters in NSW is considered far more difficult and time consuming than in other jurisdictions. For example:

- An application to gain a SRROE was repeatedly knocked back because the NSW EPA did not recognise the difference between petroleum and eatable oils. Only after specialist analytical testing demonstrated this difference was this accepted, noting it was from a process using eatable oils.
- A similar application for an SIA equivalent, was passed by the Vic EPA the first time. In NSW the same application took one application and three responses to NSW EPA's issues. Most of these responses where to explain the science in simpler terms or to correct where the EPA had misinterpreted the issue.
- Use of an inorganic waste material to be incorporated into a masonry product was repeatedly knocked back by the NSW EPA, for undisclosed reasons. After multiple responses to EPA's issues the beneficial use of this material was dropped and it went to landfill.

Overall, NSW EPA is considered the most difficult to achieve approval for a waste related (and other) material. EPA's attitude is often summed as being ultra-conservative to being obstructionist. For other improvements to effectively occur in the RRF, the attitude of the EPA's assessment process should be aligned with at least the Victorian EPA's approach.

Section 6(1)(b) POEA Act also includes, in addition to protecting the quality of NSW's environment:

- *minimising the creation of waste by the use of appropriate technology,*
- *regulating the transportation, collection, treatment, storage and disposal of waste,*

[1] For example, the inability to set workable PFAS concentration limits

- *encouraging the reduction of the use of materials, encouraging the re-use and recycling of materials and encouraging material recovery,*

ASBG considers the EPA must take into account these additional objectives of the EPA, which should not be ignored or minimised with the s6(a) *protecting the environment* being seen as dominating all other objectives.

The RRF needs to better balance between these two criteria, however in practice the lowest achievable concentrations are usually based, it seems, on the processes' capabilities than what is an acceptable environmental concentration.

2.1.1.1 Risk and End Use Based Rather than Process Based

There is an issue when it comes to the set of heavy metal criteria in some RROs. Looking at Table 1 *RRO Soil Amendment Contaminants Comparison* the difference between generic RROs and Specific RROs, where SRROEs have tighter criteria. However, these two SRREs are for specific land lots, but the general RREs apply to any land in NSW. So the issue is why are land specific RREs tighter, when general RREs are, or should be written for, the most environmentally sensitive land in NSW?

Table 1: RRO Soil Amendment Contaminants Comparison mg/kg

Contaminant	Coal Ash (max avg–Ab max)	Treated Grease Trap (max avg–Ab max)	Biomass Ash (max avg–Ab max)	Basalt fines (max avg–Ab max)	Foundry Sand (max avg–Ab max)	Recovered Soil # (proposed) (max avg–Ab max)	SRRO Company A (2020)* Soil	SRRO Company B (2020)* Soil
Arsenic	10 - 20	10 - 20	10 - 20	15 - 30	5 - 10	20 - 40	<5 -10	1 -2
Cadmium	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	< 1	0.5-1
Chromium (total)*	25 - 50	50 - 100	50 - 100	25 - 50	40 - 80	10 – 20 Cr(VI)	6 - 7	10-20
Copper	20 - 40	150 - 250	50 - 100	25 - 50	40 - 80	100 - 250	<5 - 20	10-20
Lead	-	50 - 100	50 - 100	50 - 100	15 - 30	75 - 150	6 - 24	5-10
Mercury	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.15 – 0.3	0.5 - 1	>0.1	0.5-1
Nickel	25 - 50	25 - 50	30 - 60	25 - 50	20 - 40	40 - 80	3 - 22	20-30
Selenium	10 - 20	2.5 - 5	5 - 10	--	3 - 5	-	--	1-2
Zinc	35 -70	200 -350	100 -200	75 -150	50 -100	150 - 400	10 - 73	100-150

Recovered soils RRO differs in only permitting use as engineered fill, not as a soil conditioner, which may explain the higher Pb, Cu & Ni levels.

Table 1 shows variations across different RROs for soil amendments are not consistent with significant differences between processed waste. For example, a SRRO Company A has a Cr level of 6 – 7 mg/kg, but biomass waste and treated grease trap is 50 – 100 mg.kg, a similar example applies to zinc concentrations. Why does bio-mass RRO have a selenium concentration five times higher than for SRRO company B? The limits make less sense when considering that general RROs

can be applied almost anywhere in NSW, but the SRROs have specified sites for application, yet the SRROs have considerable tighter criteria. It seems the limits are more based on what the process can deliver using the ALARA principle (*As low as reasonably achievable*), rather than considering the environmental issues of the receiving environment, especially denuded farmland. Use of ALARA should be replaced by a risk-based approach which also considers the application type and location where the RRO material can be applied. The application types listed below represent a range of risk levels:

- Soil conditioner – most exposed to flora and fauna and has a higher risk
- Engineered fill – generally buried and not used for agricultural purposes - a lower risk
- Incorporated into masonry or other materials providing a stabilisation of any contaminants – the lowest risk of this group.

2.1.1.2 Beneficial Reuse on Denuded Farmland

The location where the resource recovered material is applied to land should be a factor in determining the acceptable environmental concentrations. This nuance is missing under the current RRF, which assumes all of NSW (for generic and many specific) RROEs as a uniform environmental sensitivities. However, the RRE are already quite capable of listing specific land areas for application and some do, but missing is any consideration of quality of the land it is being applied to. In its place is an apparent ceiling of most sensitive land with ALARA applied on top of this, reducing criteria further. While this approach is useful for generic RREs, it means many specific waste types are not being utilised to optimise their beneficial reuse.

Much of NSW's farmland is denuded of trace minerals, generally resulting from low pH soils. As a consequence, there should be an agronomic argument that higher concentrations of beneficial metals and other 'contaminants' is desirable compared to sensitive environments. Nevertheless, unbeneficial contaminants will not have this argument. Harmful heavy metals may include As, Cd, Pb, Hg etc. Beneficial heavy metals include: Co, Cu, Cr, Fe, Mg, Mn, Mo, Ni, Se, and Zn, which are considered essential elements[2]. While these 'good' heavy metals are beneficial, they have a toxicity range, which varies according to plant types that places an upper application limit on the crops being grown. However, some plant species find some beneficial heavy metals harmful at much lower concentrations than others, so there is a wide sensitivity by species. Finding farmland, which is low in these metals and uses crops which require higher heavy metal levels, should maximise the beneficial use of such repurposed wastes. The RREs can set a specific location with particular crops provides scope for higher maximum concentrations than they usually accept.

Based on Table 1 the EPA is applying similar levels for both generic and specific RROs more based on the ALARA principle than the receiving land is capable of safely receiving. This means the levels tend to only vary according to the ability of the process to remove these contaminants, or the source waste material's levels are generally below these levels. Regardless, there is still scope to place a strong set of scientific and agronomic arguments aligned with specific land sites for its use where that land requires a set of contaminants for beneficial purposes. Limits to this approach include:

[2] Influence of High and Low Levels of Plant-Beneficial Heavy Metal Ions on Plant Growth and Development, Namira Arif, et al, Front. Environ. Sci., 21 November 2016.

- Finding specific land sites for application, which are commercially attractive to the source (e.g. transport costs).
- Preparing the scientific and agronomic arguments that demonstrate the need for a set of beneficial contaminants dependent on crops and mobility, or lack of, the contaminants applied.
- Some contaminants that are not beneficial can limit the application rates.
- Some beneficial contaminants have small beneficial concentration ranges, before they become detrimental
- Installing a robust tracking system to ensure the SRRO/E material goes only to those specified sites.

This leads to *Sorvari's CSIRO paper*[3], which provides valuable information in regard to application of fertilisers and select industrial wastes to agricultural land. Also presented in the paper are *Fertiliser Contaminant Guideline Values* (FCGV) and *Fertiliser Contaminant Trigger Values (FCTVs)*, which are used by South Australian EPA to set soil amendment maximum levels. This paper is well worth reading and referencing in any SRRO/E application. Below is Table 12 extracted from *Sorvari's CSIRO paper* of FCTVs in Australian fertilisers.

TABLE 12. The recommended Fertiliser Contaminant Trigger Values (FCTVs) for inorganic contaminants in Australian mineral fertilisers. FCTVs for aluminium, iron and manganese were not derived. FCTVs for boron, magnesium, and uranium were derived but are presented in Appendix 3 due to limitations in the data available for their calculation.

Contaminant	FCTV values (mg/kg nutrient)			
	N fertilisers	P fertilisers	K fertilisers	Micronutrient fertilisers
Ag	30	110	55	3.1E+03
As	65	220	115	6.0E+03
Ba	300	1000	525	2.8E+04
Be	14	48	25	1.4E+03
Cd	13	25	12	6.8E+02
CN	6.5	12	10	4.8E+02
Co	135	460	240	1.3E+04
Cr	88	290	150	8.1E+03
Cu	100	335	165	9.1E+03
F	2,100	7,000	3,500	2.1E+05
Hg	1.4	5	2.4	1.3E+02
La	17	60	30	1.7E+03
Mo	35	115	60	3.3E+03
Ni	290	970	515	2.8E+04
Pb	5.7	19	8.9	5.3E+02
Sb	9.9	33	17	9.3E+02
Se	19	60	32	1.8E+03
Sn	2.5	8	4.4	2.4E+02
Th	3.7	12	6.4	3.5E+02
V	1.2	4	2.7	1.1E+02
Zn	445	1,500	770	4.1E+04

Regardless, preparing a SRRO/E application requires considerable resources and is a process needing expertise in various areas, such as in agronomics, soil chemistry etc.

[3] Investigation into the impacts of contaminants in mineral fertilisers, fertiliser ingredients and industrial residues and the derivation of guidelines for contaminants. Sorvari J, Warne MStJ, McLaughlin MJ, Kookana R. CSIRO Land and Water Science Report 25/09. June 2009

2.1.1.3 Use as Engineered Fill

Another RRF approach is to generate an engineered fill, rather than a soil amendment. Engineered fill is not used for agricultural or rehabilitation purposes as it is generally buried usually too deep for access by plants or away from root ingress. As a consequence, engineered fill, if the burial methods are well defined, should be permitted higher contaminant levels than for soil amendment RRO material. For engineered fill a number of environmental limits should be based on leachability, rather than concentration and ALARA as described in section 2.1.1.2. Table 2 provides a list of some of the RRO limits for engineered fill and or other non-soil amendment uses. Again a similar spread of differing limits is apparent, indicating a similar ALARA approach to soil amendments is in play. The RRF should take into consideration these issue when applying for a SRROE.

Table 2: RRO Engineered Fill Contaminants Comparison mg/kg

Contaminant	EMN (max avg–Ab max)	Coal Ash (max avg–Ab max)	Basalt fines (max avg–Ab max)	Basalt fines (max avg–Ab max)	Continuous fines (max avg–Ab max)	Recovered Soil # (proposed) (max avg–Ab max)	Recovered Aggregate (max avg–Ab max)	Blast furnace slag (max avg–Ab max)
Arsenic	20 - 40	10 - 20	15 - 30	15 - 30	20 - 40	20 - 40	20 - 40	1 -2
Cadmium	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 – 1.5	0.5 - 1	0.5 – 1.5	0.5-1
Chromium (total)*	75 – 150	75 – 150	25 – 50	25 - 50	60 - 150	10 – 20 Cr(VI)	60 – 120	10-20
Copper	100 - 250	50 - 100	25 - 50	25 - 50	25 - 50	100 - 250	60 - 150	10-20
Lead	50 - 100	50 - 100	50 - 100	50 - 100	100 - 250	75 - 150	75 - 150	5-10
Mercury	0.5 - 1	0.5 - 1	0.5 - 1	0.5 - 1	0.5 – 1.5	0.5 - 1	0.5 - 1	0.5-1
Nickel	30 - 60	40 – 80	25 - 50	25 - 50	40 - 80	40 - 80	40 - 80	20-30
Selenium	-	-	-	--	--	-	-	1-2
Zinc	150 - 300	150 - 300	75 - 150	75 -150	250 -600	150 - 400	200 - 350	100-150
(dS/m) Elec Conductivity	1.5 - 3	1 – 2	1 - 2	1 – 2	2.5 – 3.5	1.5 - 3	1.5 - 3	N/A

For engineered fill there is again the opportunity to include specific locations, burial depth and other end use criteria, but this is rarely used in tandem with limits. This should permit a wider range of materials to be recycled rather than the current one-size-fits-all approach.

Locations with high background levels of certain contaminants are another example where an argument for reuse in these areas can tolerate higher contaminant concentrations. A weakness for specific lands for engineered fill is that the land to be used will likely have high background levels in one or a few heavy metals, which may limit this approaches' usefulness. Nevertheless, the permitted concentrations in a RRO will be higher than for soil amendment RRO, as a starting position. Certain infrastructure projects could take back treated soils and aggregates, based on their background land concentrations.

It seems the variations in RRO criteria are more based on *ad hoc* and ALARA methods to deal with environmental risks. However, simply tightening the criteria will not work if there is a high risk of non-conformance. Policing and quality control should be the main methods used to manage such risks. As a consequence, of this issue a standard set of base criteria should be used as discussed below, but permit increases in criteria where the land application is limited and where local conditions are considered.

2.1.1.4 Incorporation into Masonry and Other Products

ASBG members have found the EPA is also requiring RROEs on masonry and other bonded products, which use a waste as an ingredient. There are a few issues with this approach:

- Requiring an RROE for a waste containing product which is not applied to land nor burnt as a fuel appears outside the legal scope of the RRF.
- Management of wastes replacing a raw material in a product manufacturing process, is poorly defined, as there appears to be an *ad hoc* approach to this.

Victoria has its own *Declaration of Use* process to manage wastes replacing raw materials in manufacturing, which are either self-declared or subject to Vic EPA assessment. A similar process could apply in NSW to avoid the confusion and *ad hoc* approach by the NSW EPA in this area. For example:

- Second hand bricks, pallets and wood are picked out of C&D waste, separated and sold as products, even though they are wastes. The difference being most, like second hand bricks, are not land applied, so the EPA does not currently require them to be covered by an RROE.
- Recycled steel is a combination of raw steel and recycled steel. As steel is not land applied or used as a fuel it has no RROE.
- Cement blocks incorporate fly ash, slag or other inorganic waste materials, however these can be subject to the RROE process, applied to the input waste material, even though they have similar end uses to second hand bricks.
- Almost all second hand goods sold in NSW can be classed as wastes, but they are generally not of interest to the EPA, as they are in the use and custodianship of someone who wants them. Also they are not land applied placed into waterways or burnt. However, an undefined ad hoc approach is used by the EPA to an undefined set of products made partly of waste.

ASBG considers there are certain types of wastes which have a higher risk and should be assessed by the EPA. Many are captured under RROEs as additional end uses, e.g. incorporation into cementitious materials etc. While this is a simpler way to manage such waste streams applying the same risk profile for soil conditioning and or engineered fill to bound materials errs heavily on the site of caution. A better approach is to use different assessment methods including where appropriate leachability, rather than largely total concentration, to set criteria for such products. However, doing this under the RROE process is tricky given that such products are more in the custodianship of owners and are wanted and may not be wastes. Note this is subject to the interpretation of what is the definition of waste, see section 3.3. Nevertheless, bound wastes in product materials should be subject to different criteria than used for RROE assessment. This is where wastes of concern used in bonded products could use the Victorian approach and is further discussed in section 3.3.

R1 ASBG Recommends the use of Resource Recovery Orders and Exemptions include:

- ***Expanding soil conditioner use to specific land areas, such as denuded farmland, where specific minerals are lacking, to replace fertilisers.***
- ***Scientific methodologies to use as engineered fill in specific land areas which also consider background levels of contaminants.***
- ***Improve the consistency of the waste approval process by clarifying its approach.***

2.1.2 Policing

Policing of RROs and RREs is a significant risk factor for the EPA and the waste sector. Poor policing will lead to higher levels of non-conforming materials being applied to land resulting in environmental harm. A common reaction to higher levels of breaching is to lower limits. However, if there is ineffectual policing then this approach impacts on those willing to comply, whereas deliberate criminal behaviour makes larger monetary benefits. Often is the case where Clean Up Notices on the parties are ineffectual as they simply do not have the resources to move the material to landfill or treat it, resulting in a contaminated site[4].

The problem of deliberate cheating of the RROE system is by a minority. Nevertheless, as a result, the EPA has very little trust of the waste industry as a whole. Largely the whole industry is tarred by the same brush resulting an '*us and them'* culture. A common problem with all policing. Industry often complains the EPA simply finds it easier to prosecute or impose penalties on sites which are cooperative and or trying to comply with the EPA, rather than hostile and usually criminal activities. Members report the EPA seems to treat any non-compliance with a similar conviction regardless of the scale of the crime or non-conformance (e.g. asbestos contamination found in trace quantities in stockpiles) vs an illegal dumping of highly concentration asbestos waste in a public place. ASBG notes the EPA did set up a Waste Crime Taskforce[5], —in addition to the RID Squads[6]—but their actions to prosecute deliberate criminals largely focusing on illegal dumping rather than policing RROEs compliance. Overall policing used should be applied, not in a black or white manner, but one of shades of grey.

Illegal waste activities are largely a result of the very high waste levies applied in NSW. Governments have known for centuries when tariffs are applied this will attract criminal behaviour. In the 1800s smuggling from France to the UK was rife after a 30% tax was introduced. In fact, the UK archives state[7]: *Smuggling is a crime entirely created by governments.* The modern version would be *Illegal disposal is a crime entirely created by Government.* ASBG accepts the waste levies are here to stay, but the issue is – are enough Government resources allocated and used to effectively combat this significant incentive created by the levies?

The distrust issue by the regulator, extends to legitimate RRO operators with good reason. Such a position was demonstrated when the MWOO RROE was revoked. EPA, using CISIRO environmental assessments, determined the quality of MWOO product was causing excess environmental harm.

[4] The **Environment Legislation Amendment Bill 2021** reflects this issue and tries to correct it.
[5] S7.3.3 - Waste Avoidance and Resource Recovery Strategy Progress Report 2017-18
[6] Report illegal Dumping RIDonline
[7] UK National Archives https://www.nationalarchives.gov.uk/education/candp/crime/g04/g04cs5.htm and http://www.smuggling.co.uk/history.html

While this is not disputed, the manner in what happened to correct this, is of concern. Using RROE revocation with little warning to the sites, which were operating legitimately up to that point, branded them as if all were environmental criminals, however it was the goal posts which were changed. These sites suffered significant financial losses, which extended to their Local Government suppliers with their contracts no longer workable. Their crime, it seems, was not understanding that the EPA can change its mind, based on unforeseen reasons based on the protection of the environment. A similar process, though not quite as harsh, is being undertaken now with the revocation of Recovered Fines (Continuous) RROEs. This issue extends to emerging contaminants and can be included in section 2.2.

In reality the majority of RROE entities are endeavouring to keep within compliance. Their issue is that criminal entities can operate at a lower price, and subsequently place price squeezes on the compliant sector giving them the choice to either cut cost or become unprofitable. So good policing of the sector will assist the legitimate operators to perform better and remain in compliance.

The issues paper points out that one of the difficulties in policing is identifying who is the producer in a consumer's stockpile. If third parties —contractors and or transporters—provide a consumer with an RRO material, there is little basis for the consumer to be confident that the RRO material is, for example a Recovered Fines or an Excavated Natural Material (ENM), visual clues may not be useful. In practice the criteria set by Recovered Fines is quite different from ENM. While mixing different RRO material at a consumer's site is legal, falsifying where it came from is a breach.

R2 ASBG Recommends EPA improve and expand its policing of RROEs by:

- ***Improving the legal certainty that landowners / occupiers will be protected from prosecution if there is good evidence of other parties being involved***
- ***Improving the trust and cooperation between landowners / occupiers and the EPA***
- ***Assisting consumers on how to gather evidence for use by the EPA***
- ***Assisting consumers on how to avoid liabilities under the Resource Recovery system.***

2.1.3 Quality Control

A solution to ensuring compliance is to focus on quality management on RRO process and products and RRE management where necessary. In fact, quality management should be a main mechanism, along with policing, to deal with the risks of non-compliance, not further tightening of the criteria within RROs. Recycled products are subjected to two regulatory systems:

- Waste laws to the standard of at least the RROE, generally enforced by the EPA
- Product liability laws which can be remedied either:
    - By suing the producer/s, or
    - Enforcement by the ACCC

Use of the product liability resolution path via suing is very expensive and limited to where large or deep pockets are involved. ASBG is aware of one case: GC Group Company Pty Ltd v Bingo Holdings Pty Ltd [No.2] Supreme Court, where GC purchased recycled aggregate from Bingo in the Wollongong area for use on a development project. It was identified as contaminated and required removal and replacement costing GC considerable damages. GC was successful, and details of the case reflect on

the potential benefit of screening suppliers to Bingo's recycling plant. There seems potential for liability to be transferred to them.

Having the ACCC take action, while possible considered rare. So this leaves the EPA as the main enforcer of the RROEs. With limited resources, though arguably needing increasing, there is a need to consider other methods and systems to at least maintain compliance with RROE criteria. A few approaches to spread the resources, which could be considered include:

- Large waste processors operating under specific RROs to perform to an industry sector developed performance standard, with independent auditing
- For large operators, e.g. >30,000 tpa they are to install a quality control system, which controls both the inputs, processes and outputs, or
- Establishment of RROE verification auditors, similarly to that of Contaminated Site Auditors.
- Other systems where performance criteria are overseen, such as use of insurance policies or performance bonds against the call back of non-conforming product, is likely to include its own third party auditors.

Such systems tend to favour larger sites as they can afford these additional oversight costs. Hence the RRF needs to be mindful of how it treats smaller through put sites.

2.1.3.1 Photographic Standards

Another approach to consider is that used by the international recycling market. Here photos of waste lose or in bales are used to assess the minimum quality of the material which can be accepted to for example a paper mill or plastics recycler. Under the current system the consumer of the RRO product relies on the paper work from the producer or the third party delivering the material. To ensure there is little question of what the product should look like at minimum standards a set of industry developed photographs would be a reasonably straight forward way to check its quality. This should permit consumers of a much wider type to also police the quality of the RRO material they receive. However, if EPA punishes the consumer on receiving such information, the EPA's involvement will be used, with consumer law arrangements taking preference.

2.1.3.2 Risk Ranking for Quality

Quality control methods can provide forwarding of the potential for non-compliance. Using measurement data can identify when systematic or increasing errors occur. For example, in recycling Construction and Demolition Waste (C&D) the weak point is the inputs which can be from a large number of different construction contractors or other parties. A good quality control system would focus on the sources. A resulting reputational risk matrix can be formed where higher risk supplies are more thoroughly inspected and others according to their rank. This quality control process is already used by many such C&D recyclers.

In turn producers using RROs can be risk ranked depending on their reliability of source material, for example:

- **Low risk producers**: Those generating the RRO product from:

    - specific processes on site which do not use received wastes or
    - have very low variability and know sources of the type of materials ending up in the RRO product.
- **Medium Risk Producers**: Those receiving input waste material:
    - From a limited, but well known sources including on-site generated materials
    - have a process which has substantial quality control systems or
    - Use processes where high quality outputs are very well controlled or managed
    - Have a good reputation and quality control system and is open to public acceptance
- **High risk Producers:** Where input waste material is:
    - Open to the public with limited control and knowledge of source materials
    - Has a process which is not capable of removing certain contaminants of concern relying on upfront screening
    - Have a poor reputation and or a 'lite' quality control system

The risk ranking can be used to determine the level of quality control system which should be applied to such sites. High risk could require third party auditing at a frequency used by ISO 9001 Quality Management Systems. Lower risk sites could attract less to no third party auditing and or a much lighter set of quality controls. Please note ASBG is not specifying ISO 9001, but quality systems in general for the higher ranked RRO processes. It is also important to note that such a system may not appropriate for certain producers depending on scale and types of material being recovered, e.g. smaller even mid-sized producers.

2.1.3.3 Increasing Market Acceptance via Quality Control

Quality control should also satisfy reuse by consumers. Here the lower cost of RRO product is weighed with the increased risks associated with its use. The private sector is more likely to use this approach. Nevertheless, some RRO products carries a sigma of liability, especially prevalent with by-products which come with a waste liable. The risk here is the consumer being subject to EPA action, despite them having no control over the quality of the product they receive.

Use of RROE material by other Government departments, especially Local Government and Roads and Maritime is considerably limited by the risks involved. Many engineering fill criteria standards for road construction is limited by concern over any possible risk of asbestos contamination, greatly reducing the recycling in NSW. Victorian Roads have been more practical, though Victoria does not have NSW's obsession over the presence of asbestos.

Private and Government sectors probably need to be managed separately. Again having a good quality control system matched to the end consumer's standards[8] should address concerns by these two type of consumers.

R3 ASBG Recommends the EPA:

- ***EPA to use quality control methods and policing***
- ***Recognise the quality control systems used by Processors and Consumers in managing compliance in the Resource Recovery Framework including reputational risk rankings used by the sector.***

[8] Consumers can have product performance standards in addition to environmental ones, e.g. particle sizes, densities etc.

- ***Where appropriate recognise, and where appropriate publish photographic minimum standards for consumers to use.***
- ***Require underperforming Processors and Consumers to implement quality control systems based on their performance and risk ranking.***
- ***Support industry sector developed quality control systems, where they are fit for purpose and if followed provide a high level of compliance.***

2.2 Dealing with Emerging Waste Contaminants

How can the framework be structured to deal with new and emerging waste streams and mitigate the risk of cumulative impacts from legacy and emerging contaminants?

Most of the emerging new contaminants have already been flagged. The Stockholm Convention listed PFOA and PFAS in 2009, yet these and similar PFAS were not addressed significantly in Australia until 2014-15. The next round of chemical types not well covered in Australia are bromated organics, where the Stockholm Convention lists specific ones used largely as a flame retardant plastic additive[9].

While there are other chemical types which could emerge, these are probably organic and affect a small industry sector. Nevertheless, the issue with emerging new contaminants is their impact on the environment. Being new they have limited assessment of their impacts, hence the precautionary principle tends to take over, which in the PFAS case has gone to extreme lengths of conservative application. With new contaminants Government must be wary of generating a positive feedback loop where public concern causes a more precautionary risk adverse reaction from the regulators, which then feedback increasing public concern and so the loop continues. An example of this can be seen in difference between the National Environment Management Plan for PFAS No.2 and the multiple order of magnitude reduced limits being set by various environmental agencies.

EPA should be at least signalling what are the likely new contaminates of concern, based on international sources such as the Stockholm Convention and other scientific research. It can list these in various categories;

- Possible chemicals of concern
- Likely chemicals of concern
- Known chemicals of concern – with limited data on environmental impacts
- Known chemicals of concern – with reasonable data on environmental impacts

At least industry and the contaminated site professionals will have better idea on what to watch out for and likely deal with such wastes differently.

R4 ASBG Recommends the EPA publish a list of expected emerging contaminants and the extent of knowledge about their environmental and human health harmfulness.

[9] See The new POPs under the Stockholm Convention

3 RESOURCE RECOVERY AND THE CIRCULAR ECONOMY

3.1 Facilitating better circular economy outcomes

What options exist to facilitate better circular economy outcomes and improve certainty for innovation, business, investment and participants within the resource recovery framework?

3.1.1 Planning and Environmental Laws Coverage

NSW environment and planning laws are notorious in preventing research past the laboratory scale. While the issues with licensing under environmental laws were discussed in the issues paper the depth of the issue extends into the planning system and Environment Planning and Assessment laws in NSW. Unlike Victoria, NSW planning criteria also acts as barrier to pilot plant or small scale commercial plant. Nevertheless, ASBG welcomes the Issues paper recognition of the issue, but its solution will require amendments to more than the resource recovery laws.

Even then resource recovery processes proven overseas are often trapped in this green tape for reasons such as "*feed streams are different*" or the overseas process "*differs in a small way*" from what is proposed. With such road blocks on innovative and new processes to NSW or Australia in NSW, this greatly damages NSW's ability to utilise the latest technologies and prevents NSW from innovating in many areas of the Circular Economy.

The design of Schedule 1, POEO Act and Schedule 3, Environmental Planning and Assessment Regulation 2021 in capturing very low levels of waste processing as designated developments, means innovation cannot occur in NSW except in laboratory scale processes. For example:

Table 3: Schedule 1 POEO Act:) Extract Showing the thresholds for an Environment Protection Licence for Waste Facilities

Activity	Criteria
34 Resource recovery recovery of general waste	if the premises are in the regulated area— (a) involves having on site at any time more than 1,000 tonnes or 1,000 cubic metres of waste, or (b) involves processing more than 6,000 tonnes of waste per year if the premises are outside the regulated area— (a) involves having on site at any time more than 2,500 tonnes or 2,500 cubic metres of waste, or (b) involves processing more than 12,000 tonnes of waste per year
34 Resource recovery recovery of hazardous and other waste	involves having on site at any time more than 200 kilograms of waste
34 Resource recovery recovery of waste oil	involves processing more than 20 tonnes of waste oil per year or having on site at any time more than 2,000 litres of waste oil
40 Waste processing (thermal treatment), non-thermal treatment of hazardous and other waste	involves having on site at any time more than 200 kilograms of waste (other than clinical and related waste), or involves having on site at any time any quantity of clinical and related waste

41 Waste processing (non-thermal treatment), thermal treatment of hazardous and other waste	involves having on site at any time more than 200 kilograms of waste (other than clinical and related waste), or involves having on site at any time any quantity of clinical and related waste

Table 4: Schedule 3 EPA Regulation 2021: Extract Showing the thresholds for Designated Development for Waste Facilities

Activity	Criteria
25 Energy recovery facilities	(1) Development for the purposes of an energy recovery facility is designated development if the facility-- (a) processes more than 200 tonnes per year of waste, other than hazardous waste, liquid waste, restricted solid waste or special waste, or (b) has on site at any time more than 200 kilograms of hazardous waste, liquid waste, restricted solid waste or special waste.
45 Waste management facilities or works	(1) Development for the purposes of a waste management facility or works is designated development if-- (a) the facility or works dispose of solid or liquid waste by landfilling, thermal treatment, storing, placing or other means, and (b) the waste -- (i) includes a substance classified in the ADG Code or medical, cytotoxic or quarantine waste, or (ii) comprises more than 100,000 tonnes of clean fill in a way that, in the consent authority's opinion, is likely to cause significant impacts on drainage or flooding, or (iii) comprises more than 1,000 tonnes per year of effluent or sludge, or (iv) comprises more than 200 tonnes per year of other waste material.

For example, of how small these thresholds are, consider:

- Section 45 EPA Reg, requires isolated Household hazardous waste community centres to be subject to a full Environmental Impact Statement process, even though such facilities process a few hundred kilograms a week and store less than 3 tonnes of dangerous goods in total on site at any one time.
- Section 45 would capture a very small pilot plant trying to store, treat or process soil contaminated with class 9 miscellaneous substances.
- The triggering of the EPL thresholds would also likely trigger the EPA Reg, thresholds. So 200 kg of hazardous waste or 20 t of oil to be treated would certainly require the site to have Development Consent, if not completing the full EIS process before its application for an EPL is considered.
- Triggering EPL thresholds of 6,000 tpa or 1,000 tonnes at any one time, for receiving 'waste' RRO material on the site for further processing into a product. Consider Reclaimed Asphalt Pavement being sent to a bitumen batch plant for recycling. Being still a waste it can trigger an EPL requirement as a waste storage facility. See section 3.2.1 below.

Members claim the EPL system also generates a *catch 22* situation for innovative processes. The process can generate a continuous loop, especially if air emissions are generated:

- Applicant applies for a pilot plant EPL and a Development Approval

- EPA will not issue an EPL as there is no satisfactory data on how well this process works and what emissions it may generate when operational
- No data is available because it needs to be built, or is based on overseas results, generally viewed sceptically –different input stream used in other places
- Use of computer modelling etc. on how well the process may run is very limiting and likely not acceptable to the EPA air branch. A variability study can be required to see how well it copes with spike contaminants.
- Planning consent will not proceed until the EPA accepts the risks associated with the proposal.
- As the plant cannot be built so it cannot be tested, so no testing data no permission – *catch 22.*

As a consequence, innovative pilot plant scale, novel processes or even modified processes are treated the same as full scale and simply unviable. Many innovative waste processing and treatment methods turn to other states, commonly Victoria, which does have a framework which permits pilot plant to commercial scale without the problematic planning and EPL requirements that bog down NSW's ability to host innovative and novel resource recovery processes. Clearly, a new way forward in licence and planning laws NSW is required. However, just a change as suggested, a similar model to Victoria's pilot project licence would require changing both Schedule 1 POEO Act and Schedule 3 EPA Regulation.

3.1.2 Thermal Treatment of Waste and Air Emissions Barriers

In addition, the road blocks also extend to what is captured as Energy from Waste (EfW) facilities. Note, EfW in NSW has a far broader collection of process types. The *Draft Protection of the Environment Operations (General) Amendment (Thermal Energy from Waste) Regulation 2021 (EfW Reg.)* captures sites making fuels from waste using thermal processes, requires Advanced Recycling to remake 75% of its plastic input streams back into plastic or at least an input stream which makes plastic and restricts the use of Refuse Derived Fuel (RDF) in preference of fossil fuels[10]. It seems any waste process which involved an air emission from some thermal process is subjected to highly restrictive siting requirements and very conservative air emission limits which demonstrate effectiveness over a wide range of waste variations. As a consequence, the EfW reg. overlaps with the RRF impacting on many recycling process types. This style of regulation is a r mechanism which picks certain favoured technology types providing them with far less regulatory controls than other recycling processes particularly affecting and splitting the large array of Advanced Recycling processes. In general, this is poor regulation as it picks winners and punishes losing technology types. This approach will generate substantial market distortion making the future recycling infrastructure less capable and more inefficient.

Overall, the spread of different technologies which will form the circular economy will vary over time according to consumer choice, driven by market forces. Consequently, Government should provide the platform for the markets to perform and not pick winners or losers. If any environmental criteria should set, this should be universal affecting not just the resource recovery sector but <u>all</u> processes.

[10] See ASBG's submission on the draft Thermal Energy from Waste Regulation 2021

R5 ASBG Recommends the:

- ***Reforming the Environment and Planning legislation to aid in the siting and building pilot and commercial demonstration of new and recent resource recovery projects and processes.***
- ***Ensuring the Resource Recovery framework is open all process types as long as they meet the environmental scientific requirements.***

3.2 Benefits of an 'End of Waste' Provision

What specific benefits would an 'end of waste' provision deliver that aren't already provided by the current framework?

There are a number of reasons for using the End of Waste provision:

- Avoid unnecessary licensing of stored RRO materials
- Remove unnecessary testing of recycled and quality checked material at the consumer end
- Increase the legal confidence that the RRO material can be used for its purpose under the RRE.

3.2.1 Unnecessary Licensing

RRO processed material is often required to be stockpiled at the consumer's site for their use. Often these stockpiles can exceed the Waste Storage 6,000 tonne per annum or 1,000 tonnes at any one time triggers under Schedule 1 POEO Act. Consequently, sites storing recycled RRO material, for additional recycling or raw product replacement, are required to hold an Environmental Protection Licence (EPL). For example, a glass sand RRO processor sends bulk quantities >6,000 tpa to a consumer, who makes this into a concrete based masonry products. What is the purpose of the EPL? The consumer is regulated under the RRE and the processor under the RRO, the EPL requirement is redundant.

ASBG considers if the RRO material is similar in risk to the raw material it is replacing, then a double standard exists, penalising sites utilising recycled RRO material from other largely naturally sourced material. Having an End of Waste provision on low risk RRO material would free up such consumers and pose little risk in comparison and improve the marketability of such RRO materials.

3.2.2 Redundant Testing

ASBG members point out that many RRO materials they receive are subject to analysis at both ends. Doing this is either required under a RRE or indirectly for their protection against EPA regulatory actions. This is another example of where the consumer can be held responsible by the EPA for accepting faulty product, tuning consumer laws on their head. This reverse of consumer law, under environmental laws, needs addressing. EPA does not police non-wastes, other than contaminants under the Environmentally Hazardous Chemicals Act 1985, so consumers are not required to test for contaminants in products, which may or may not contain environmentally harmful substances as this is screened out using largely Commonwealth laws, such as banning local manufacture and or importing of ratified Stockholm Convention POPs, asbestos in products. When does a RRO material

become a product or when does it remain a waste is the issue? A NSW End of Waste provision to RRO materials which meet lower risk and or other criteria would solve this issue. However, what the risk and criteria will be should be subject to further consultation with affected industry and businesses.

3.2.3 Increased Confidence in RRO Material Use

When a waste can be declared a not a waste anymore this shifts the policing and liabilities generally away from the EPA and on to Product Liability. Queensland's End of Waste approach is a welcomed approach. Consumers who have been provided quality assessments from the producer that their material meets the criteria and is no longer *waste* will have far greater confidence in using that recycled material. End of waste provisions would work far better with Government agencies, especially in road construction. A key issue here is the level of quality control that would satisfy the EPA which fits within its risk-based approach.

If EPA requires the option of relooking at any load of material, despite the quality control measurements, samples, documentation etc. demonstrating that this material meets or exceeds the RRO conditions this may negate or limit the usefulness of this approach. ASBG considers there should be a clear line where the liability for End of Waste is not under the EPA remit, and moves to product liability and consumer laws. Some higher risk RRO products may not be suitable for an end of waste classification, however, there are many RRO products where this can be a benefit. Overall the end of waste issue is not black and white, but should be applied strategically preferable using an inclusion approach for those RRO products which should not have end-of-waste applied.

R6 ASBG Recommends the Resource Recovery Framework include the End of Waste classification for appropriate RRO materials.

3.3 What is Happening Outside the Framework?

Are there resources being recovered or re-used outside the current exemption framework that would benefit from greater regulatory clarity?

NSW Waste laws offer no legally direct or specific exemption for wastes replacing raw material streams. Capture is a function of the definition of waste. Under the definition of waste in the POEO Act and POEO (Waste) Regulation, wastes applied to land or used as a fuel (few exceptions) appear captured.

> ***"waste"*** *includes--*
> *(a) any substance (whether solid, liquid or gaseous) that is discharged, emitted or deposited in the environment in such volume, constituency or manner as to cause an alteration in the environment, or*
> *(b) any discarded, rejected, unwanted, surplus or abandoned substance, or*
> *(c) any otherwise discarded, rejected, unwanted, surplus or abandoned substance intended for sale or for recycling, processing, recovery or purification by a separate operation from that which produced the substance, or*
> *(d) any processed, recycled, re-used or recovered substance produced wholly or partly from waste that is applied to land, or used as fuel, but only in the circumstances prescribed by the regulations, or*
> *(e) any substance prescribed by the regulations to be waste.*

A substance is not precluded from being waste for the purposes of this Act merely because it is or may be processed, recycled, re-used or recovered.

However, the definition of waste is very broad including ((c) waste definition) surplus substances intended for sale. Consequently, most second hand goods can be considered a waste. Even products which contain a part which is waste is also a waste under ((d) waste definition). A general rule of thumb here is that even if it is a waste, as long as it is not going into land or being burnt or placed in waterways the EPA is not interested in it from a waste perspective. The POEO (Waste) Regulation 2014 strengthens this approach, further defining land application and use as a fuel for wastes and wastes blended with non-wastes. So it is this interpretation of the definitions of wastes which is being used currently, but this offers poor legal comfort for many processes which generate by-products which are used as raw materials or replacement raw materials into other processes.

The ruling from the EPA v Grafil CCA on NSW's waste definitions muddies the waters with legal uncertainty. As can be seen in the definition of waste above, the CCA ruled in effect, that the word "*or*" separating each clause is to replaced by "*and or*". This greatly increases the capture of wastes under the POEO Act. Under this interpretation all wastes, which are not being landfilled, could be subject to the RROE process, even if their end result is no land application or use as a fuel. For example, the products from a plastic manufacturer who adds % recycled content in their product would be considered a waste especially if it's a product for subsurface use, e.g. plastic piping, cable covers etc. So many products which contain a portion of waste ((d) waste definition) and are sold ((c) waste definition), regardless if they are applied to land or not are still considered a waste. Capturing a wider set of products which contain some waste component—made partly from waste—as wastes can trigger Licence waste storage requirements. For example:

- Engine oils would be considered a waste as most contain at least a trace of recycled oils.
- Recycled plastic products stockpiled > 1,000 m^3 → Waste storage licence, possible RROE required for use.
- Second hand bricks > 1,000 m^3 stockpile → Waste storage licence, possible RROE required for use.

As a result, it can be argued that EPA v Grafil CCA requires all products sold to be covered by a RROE, with many potentially triggering a waste storage licence. While this is not the current intent of the EPA, it can be an issue if third parties take on legal action or future interpretation by the EPA. Method to avoid such unintended interpretations of what is waste includes;

- To provide the End of Waste condition.
- Legal mechanisms such as Victoria's Determination of Use method
- Reworking the definition of waste in the POEO Act's definitions

NSW needs to fill the void of uncertainly or by other methods where use of such by-products or surplus streams can be used without being subject to waste laws and the RROE process.

3.4 Waste Definition and The Circular Economy

Does the current waste definition facilitate circular economy outcomes while ensuring the protection of the environment and human health? If not, what changes do you suggest

Again the EPA v Grafil CCA case exacerbates a confusing definition of waste. This feeds into other legal processes which makes it easiest for EPA to prosecute the receiver of the waste over all other parties. There are many issues here.

3.4.1 Asbestos Waste

Management of asbestos waste in NSW, has moved from a scientific risk-based approach to one based on beliefs, emotions; mainly fear, and consequently, absolutes. Asbestos in NSW is unique among environmental contaminants as its mere presence makes a waste asbestos waste. There is no limit, no science backing the zero threshold, just its presence. Consequently, asbestos is the only environmental contaminant in NSW with no limit, simply an unscientific position. Four recent changes in NSW have strengthened this position including:

- Section 241(1)(f) POEO Act, *Matters to be considered in imposing penalty – the presence of asbestos* undermines confidence in C&D recycling due to unscientifically based liabilities, especially from the proposed presence based approach. It also enshrines the presence of asbestos as a key position under the POEO Act.
- The EPA v Grafil CCA case changed the Court's the definition of waste and interpretation of what is asbestos waste, again no limit is supported based on the legislation, and the definition of waste capturing many by-products and other materials as wastes

NSW Parliament has made its concerns on asbestos clear, that even a single fibre is hazardous — a myth generated out the USA's litigious compensation focused legal processes. In particular, asbestos is now the only contaminant where a *presence based* approach is used, essentially meaning only a zero level is acceptable. However, has published documents stating:

- World Health Organisation: Urban areas: - general levels may vary from below 100 to 1000 F/m^3
- Safework Australia See the table of typical background – avg. outdoor air is 0.0005 fibres/ml and 0.0002 fibres/ml in indoor air
- Asbestos, Victoria: We are all exposed to low levels of asbestos in the air we breathe every day. Ambient or background air usually contains between 10 and 200 fibres for every 1,000 litres (or cubic metre) of air.

Achieving a zero asbestos level in any stockpile of waste exposed to urban air is simply not possible as asbestos fibres are ubiquitous, with background concentration, contaminating all exposed stockpiles making them all potentially asbestos waste. A rigorous testing regime will, therefore find asbestos fibres; it simply depends on how hard it is looked for. Legally, scientifically and practically this causes perverse outcomes resulting in significant difficulties and high uncertainties. All other states and jurisdictions use *AS4964-2004 Method for the qualitative identification of asbestos in bulk samples* (AS 4964) as is and accept its 0.01% level.

This leaves the EPA waste strategy to pick up the consequences of such a position, resulting in vast quantities of asbestos waste being generated. The Asbestos Safety Eradication Agency (ASEA) in their National Strategic Plan for Asbestos Management and Awareness 2014 - 2018 Final Report, lists the volumes of asbestos waste being generated in each state. These figures show NSW is by far the largest generator of asbestos waste. Waste data for NSW is displayed in this table:

Table 1: Asbestos Waste in NSW		
NSW Asbestos removed (friable)		
Year	Sheet m^2	tonnes
2014	269,067	110,978
2015	354,682	702,878
2016	269,789	1,164,947
2017 to Sept	385,405	2,021,497
2018 to July	237,919	1,576,593

ASEA indicated the data came from the NSW EPA, largely from Waste Locate tracking system data and other sources. Given that NSW sent 7.1 MT of waste to landfill, asbestos waste generation, made up of very lightly contaminated soils represents 44% of all wastes in NSW. This sounds incredible and the data requires rechecking. In addition, a significant portion may still be going to Queensland due lower landfill gate fees, which are being corrected by increases to Brisbane areas' landfill levies. Despite questionability of the amounts, asbestos waste is a growing and significant source of waste that cannot be recycled or reused (POEO Act) that must be landfilled, but it is consuming NSW landfills at an alarming rate.

NSW's Waste and Sustainable Materials Strategy – A guide to future Infrastructure needs, stats there was 900,000 tpa of asbestos waste and 839,000 tpa contaminated soils in 2019-20 requiring disposal. ASBG considers a significant portion of the contaminated soils can be also classified as asbestos waste. If the ASEA data was annual based this would support NSW's Government data that about 1.5 M tpa of asbestos waste is generated annually in NSW. This material flow is fast filling up Sydney areas' landfill capacity where the Guide indicates that non-putrescible landfill space will be filled by 2028. Also it says it takes 10 years to plan and site a new landfill and none are in the pipeline due to planning approval blockages of past landfills development applications.

In conclusion, the *presence based* approach to asbestos is filling up valuable remaining landfill capacity with all treatment options blocked by its zero tolerance criteria. Other states, which have reasonable asbestos limits do not experience the same vast volumes of soils with trace amounts of asbestos, a ubiquitous background contaminant, and utilise resource recovery of such soils far more effectively. However, as Sydney then NSW fills its landfills, NSW asbestos waste will increasingly affect neighbouring jurisdictions with cost or non-receival consequences.

3.4.1.1 Measurement of Asbestos

Measurement of asbestos in wastes directly affects resource recovery. As discussed asbestos is unique in environmental contaminants as it is the only substance with no concentration limit, just its presence is enough. There is an opportunity for the RRF to use measurement to establish a reasonable concentration for asbestos which is within reasonable safety zone like all other environmental contaminants. However recent attempts by the NSW EPA have been clumsy.

The recent draft Recovered Fines (batch) RRO and Recovered Soils RRO, introduce a massaged version of AS4964. ASBG members who were involved in the writing of this standard considers the changes, are not suitable for laboratories to follow. It is normal practice for changes to analytical methods to be subjected to a rigorous scientific assessment and peer review before being made an official method. This is the approach by the US EPA. However, the changes in these drafts are ad

hoc and entirely generated within the NSW EPA. ASBG has listed its concerns and itemised the areas in our submission on the draft Recovered Fines (batch) RRO and Recovered Soils RRO.

3.4.1.2 Asbestos Destruction Method

There are a number of scientific papers dealing with the carbonation of asbestos or carbonation of serpentine (of which asbestos is a crystalline form)[11][12]. While these are a laboratory scale, there is significant potential to use CO_2 to carbonate white asbestos (perhaps other forms), simultaneously destroying asbestos and chemically binding CO_2 as a permanent sink. The chemical reaction is:

$$Mg_3Si_2O_5(OH)_4(s) \text{ (serpentine)} + 3CO_2(g) \rightarrow 3MgCO_3(s) + 2SiO_2 + 2H_2O(l)$$

which is exothermic: $\Delta H_{reaction}$ = -63.6 kJ/mol CO_2

Time of reaction is the critical issue, and to be commercially viable, would likely need less than 8 hours' reaction time, which is a function of:

- Particle size, grinding required
- Temperature of the reactants
- Concentration of CO_2 (pressure used)
- If pre-treatment of the serpentine is undertaken e.g. to remove H_20

Given the high cost of landfilling asbestos waste, which is around $500/t including transport, in which the vast majority is soils with very low concentrations > 1%, a treatment solution which destroys asbestos is potentially commercially viable. In addition, as it removes CO_2, it fits into NSW Net Zero policy well and would likely be able to claim carbon credits.

In NSW there is a problem with such an elegant solution to the bulk of soils contaminated with low levels of asbestos. To achieve 100% conversion of all asbestos in such a treatment facility is simply not possible, as there will always be a very small trace of unreacted material. Hence, the zero presence of asbestos cannot be achieved. However, in other states using AS 4964 < 0.01% criteria such processes are quite achievable and viable. Again the presence based approach to asbestos means this material must continue to be landfilled in NSW, while other states would be able to take advantage of this emerging technology. In addition, such technology would likely be ruled out as it conflicts with s144AAB POEO Act which makes it an offence to cause or permit asbestos waste in any form to be re-used or recycled.

R7 ASBG Recommends the NSW Government adopt a concentration and risk-weighted based approach to asbestos waste, by adopting the criteria under AS 4964.

[11] CO_2 Sequestration by Direct Dry Gas-solid Contact of Serpentinite Mining Residues: A Solution for Industrial CO_2 Emission. Sanoopkumar Puthiya Veetil et al, Volume 2, Issue 2, Year 2014, Journal ISSN: 1929-2732.

[12] Asbestos Waste Carbonation: A New Asbestos Treatment with CO2 Recovery. F. TRAPASSO*, et al, CNR - Institute of Environmental Geology and Geoengineering, Research Area Rome1, Via Salaria km 29.300, Montelibretti (Rome), Italy

4 ADMINISTRATION OF THE RESOURCE RECOVERY FRAMEWORK

4.1 How can transparency be improved?

How could the overall transparency and clarity of the resource recovery framework be improved?

ASBG offers the following areas for improving transparency:

- **EPA publish guidelines on the RROE assessment process:** Applicants for specific RROEs would find the process of approval more transparent and easier to follow if EPA publish guidelines on the RROE assessment process. This is an outcome from section 2.1.1.
- **Publishing of the assessment processes used for making generic RROEs and their updates**. This would include, the technical assessments used and how they are fit for purpose use would add to the transparency process. Such document would greatly assist applications for specific RROEs in better understanding the assessment processes used and what concentration targets and or end land use areas are applicable.
- **Publishing of the Specific RROs criteria only**: So applicants can assess what to aim for in in designing new resource recovery processes. Criteria only publication means each SRRO is referred to in numerical order only.
- **Guidance on the use of RROEs in or on specific land application areas**, where there are good environmental and technical reasons for doing so. This is an extension of discussions in section 2.1.1.

The scientific methodology for RROEs and SRROEs is not identified, other than "trust the EPA to get it right". As identified in this submission there is some limited sway in the criteria used, however, the scientific methodology used is not provided. Again there is some evidence that ALARA is used, but this results in less resource recovery being made available. A scientific approach, rather than ALARA, is a far sharper tool resulting in achieving the proper risk-weighted outcomes to optimise resource recovery and environmental protection.

ASBG notes there are many more RROEs which are published under the NSW Gazette which do not appear on the EPA's website list of *Current Orders and Exemptions*. Keeping this list up to date would improve transparency.

The EPA should invite expertise from the Department of Primary Industries regarding specific areas. Perhaps have a low cost independent technical tribunal review cases where RROE application processes have stalled or are aggrieved. Going to the LEC is quite costly and detracts many from considering a judicial review.

R8 ASBG Recommends the EPA introduce the following transparency documentation and practices:

- ***A detailed guideline on how RROEs (specific and generic) are processed, based on strong scientific principles.***
- ***Publications on the assessment or reassessment process of RROEs, detailing the scientific justification for the criteria provided.***
- ***A guideline for the use of potential fertilizer replacement and management where high levels of background contaminants are present.***

4.2 Improving measurement and or systems

What tools, systems, data or methods could be used by the EPA to better understand the waste being utilised under the framework?

Much of this question has been answered in other sections, so to recap these would include:

- Permit site or industry sector developed quality control systems
- Permit a reputational risk index for processors to rank waste suppliers and transporters.
- EPA to review and rank RRO using processors according to quality risk

4.3 Amending or Revoking Existing RROEs

What processes could the EPA put in place when determining whether existing orders and exemptions should be amended or revoked due to environmental or human health risks?

The MWOO and proposed Recovered Fines revocations and amendments could both have been done much better. ASBG accepts that with enough scientific evidence, some RROEs may require to be revoked, but this should be the last tool to be used and then with reasonable transition.

If the EPA must undertake a revocation of an RROE, it is an admission both the RRO and or its policing failed. A failure in the RRO means it was not specific enough on the quality criteria. This was true with the MWOO revocation, which was blunt and hard hitting and an example of not solving the issue, simply stopping it. Failures under the Recovered Fines RROs are more systematic of a failure of policing of the quality from the processors. However, given the tighter criteria under the draft Recovered Fines (batch) RRO is also indicative the current version is not specific enough. Note ASBG's submission on the Recovered Soil Order & Exemption 2021 covers some of these issues.

ASBG considers a better way to manage poorly performing RRO producers is via better policing and use of quality control methods. If EPA is concerned over non-compliance it should trace this back to the source or sources of the issue. Follow up on quality at the source to enforce the RRO will have ramifications through the sector. Actions by the EPA do not need to be only punishment, but requirements of other controls which do not require the same level of legal resources as a regulatory action. For example, EPA could place such sites into a higher level of quality control conditions requiring increasing their sampling and use of independent audits or other quality control measures which are very well documented and used across industry. This could be similar to that of a *Pollution Reduction Program* as applied to EPL holders. Establishing the level of risk the close call or non-conformance poses should result in a much larger suite of control approaches which the EPA should use.

Use of customers to inform the EPA over quality is poor as with the outcomes of the EPA v Grafil CCA case, the customer is more likely to be doubly punished for accepting a substandard product and having to manage this, then finding the EPA wishes to prosecute them (see section 2.4.1 Policing). Fixing the blame game in non-conforming RRO material with less focus on the consumer will increase market confidence to report issues with RRO material from various processors.

For details on this issue and ASBG's recommendations please see other recommendations in this submission and ASBG's Submissions on:

- ASBG's Submission Draft Recovered Soils and Recovered Fines Orders and Exemption
- ASBG's Submission Revocation of Recovered Fines and Recovered Soil RRO/Es

5 ENFORCEABILITY OF THE RESOURCE RECOVERY FRAMEWORK

5.1 Capturing Responsibility Along the Supply Chain

How could the framework be strengthened to ensure responsibility along the whole supply chain – waste generator, transporter, processor, transporter and consumer?

A key issue which is apparent throughout this submission is the EPA should improve its policing, but it needs help. EPA should assist the consumer in doing this policing. EPA has limited resources. Landowners/ occupiers are generally on the same side as the EPA in protecting the environment, moreover their property values. EPA needs to bring the consumer / land owner/occupier on board as a potential source, not seen first as another offending party in the process. While the consumer can undertake their own actions, this is costly and limited to large volumes in quantities of material and costs. A combined effort should generate better results.

The issues paper identifies that the transporter and other intermediate parties are simply left out of the RRO regulatory process. Contamination of good RRO material can occur between the processor and the end landowner/occupier who may or may not be the consumer. A landowner/occupier has the most to lose as y accepting a faulty product – RRO material- can be contaminating their site. This contamination will be found as the real estate market is very aware of site contamination and the liabilities associated with it.

It is not uncommon that illegal activity is captured by hard evidence obtained by a processor, consumer or landowner, such as video, false certificates or other actions of being criminally involved in wilfully breaching waste laws. However, our members have claimed the EPA when provided with such evidence takes no action and provides no explanation or feedback why no action was undertaken. Provision of at least feedback, where such evidence has been provided will promote better views about the EPA as the police for environmental crimes. It is appreciated that much evidence is not legally effective, so EPA guidance on the types of evidence how to collect it and ensure it is legally admissible would assist.

Solutions identified include:

- EPA to recommend/educate consumers deal directly with the processors and or have robust contracts, insurance and or knowledge about the third party used to supply fill.
- Accept that a processor has good quality systems in place which decrease their risk of non-compliance.
- Accept where a processor has an effective third party auditing process, this will decrease their risk of non-compliance.
- The processors to use reputable transport / landscaping or construction companies.
- EPA to produce visual standards using photos of minimal acceptance RRO material where the contaminants can be visually identified.
- Consumers are permitted to reject doubtful loads returning them, backed with reasonable evidence.
- Requiring transporters of high risk and or of high risk RROs with real time tracking systems on their vehicles.
- Regain landowner / occupier confidence, using them to collect evidence:

- EPA to avoid pursuing landowner/occupiers, where a third party is likely to be culpable.
- EPA to develop guidelines for consumers, landowner/occupier on how to collect useful evidence for the EPA to take action.
- Ensure when consumers supply evidence to the EPA, there is follow up and explanation why no action was taken.

- Suppliers to producers are the potential source of contaminants so the above point can, to an extent apply to a producer as well.

ASBG does not wish to limit the practice of using third party contracts, but consumers and even processors of RRO material need to be better prepared.

5.2 Waste Classification Guidelines

What are the strengths, weaknesses and challenges of using the waste classification guidelines and definitions in the context of operating within the resource recovery framework?

In terms of resource recovery, the Waste Classification Guidelines (WCG) are only indirectly relevant. NSW WCG only set landfill acceptance criteria, with the upper range falling into hazardous or prescribed wastes which cannot go to any landfill in NSW. In addition, the WCG have not been significantly changed in over 20 years, with only minor amendments. As a consequence, these have been widely adopted, well known and used by industry and the waste sector.

Additionally, the WCG criteria is used in similar ways in other jurisdictions, particularly in Vic EPA's Publication 1828.2. While this document covers landfill acceptance it also standardises fill material concentrations for generic fill. The advantage of such criteria is consistency and simplicity. However, its downside is if it is used as a hard no exceptions rule. If used in such a way this would prevent certain industrial wastes being used as fertiliser replacement as discussed in section 2.1.1. A better approach is that such a table is used for generic waste fill, but with a published process where exemptions[13] can be applied for specific beneficial applications. Note such criteria should be consistent with other jurisdictions to prevent criteria shopping resulting in long haul transport.

5.2.1 Sampling and Measurement Issues

The WCG specify sampling criteria, generally 95%UCL, but here NSW lags behind other states, using the Contaminated Sites Sampling Design Guidelines 1995. This document is being updated[14], but there are many issues over the statistical methods used in the draft. Commonly the NSW EPA refers to the Vic EPA Publication IWRG702 Soil Sampling for sampling methods, but commonly many EPA officers do not understand how to interpret the statistical criteria this document sets out.

In addition, many RROs contain their own sampling criteria which again is considered over conservative, setting minimum sampling numbers based on stockpile size and assuming a large standard deviation. This means stockpiles with lower statistical variation must undertake far more samples and analysis than necessary resulting in excessive costs. Consequently, RROs such as for ENM and draft Recovered Fines and Recovered Soils, will not permit the use of text book statistical methods to achieve a 95%UCL. ASBG considers a better approach is to use a consistent sampling

[13] The legal provisions for exemptions appear throughout the POEO (Waste) Regulation 2014, in particular Part 9.
[14] See ASBG's Submission on draft NSW EPA's Sampling Design Parts 1 & 2

guidelines, which will probably be the updated Contaminated Sites Sampling Guidelines. Having *ad hoc* sampling within RROs and sometime RREs, is unnecessarily complex. Such individual sampling criteria is akin to the EPA establishing a quality control method on individual RROs. Perhaps a sampling guidelines can list certain sets of sampling depending on the risk-weighting of a set of RRO types?

In addition, emerging contaminants such as PFASs have not been provided any landfill criteria. While the NEMP PFAS 2 provides reasonably conservative landfill acceptance criteria these have not been adopted. This is more of a result of the public and media fear over the health impacts which are quite low.

Many background levels of soils exceed landfill acceptance criteria, but its more the political fashionable contaminants e.g. PFAS asbestos, which generate ridiculously conservative limits.

R9 ASBG Recommends that:

- ***The Resource Recovery Review consider the solutions provided to better manage third parties and transporters in the chain from producer to consumer.***
- ***The Waste Classification Guidelines to include general fill material criteria in addition to landfill acceptance criteria, along with a published means to gain exemptions where appropriate.***
- ***Uses sampling guidelines based on both standard criteria or demonstrated statistical methods to be used for setting sampling across all RROEs.***

6 CONCLUSION

A reformed Resource Recovery Framework (RRF) as discussed in this submission will lead to increased levels of beneficial reuse, improving diversion from very limited landfill space. Increased policing and cooperative policing should assist in weeding out deliberate criminal abuse of the RRF, at the same time increasing the overall standard of RROE compliance. Use of a range of quality management tools for RRO material quality, if managed flexibly, should also improve the quality outputs of the processes and where required the consumer.

Using a fully transparent science based approach to the setting of RROE criteria, supported by reports on assessment of new and updated RROEs will provide clarity and confidence for new ways for beneficial reuse under the revised RRF. This will encourage innovation and expansion of the RRF to further reduce waste to landfill while maintaining environmental protection standards. Removal of roadblocks, limited technology types to siting of pilot and small scale commercial demonstration plants will permit NSW to benefit from innovated and new treatment technologies, rather than a taker of old technology.

Introduction of an End of Waste provision will assist in removing unnecessary licensing requirements for stockpiles, reduce redundant consumer testing and increase confidence in the market for RRO material use.

Expanding the Waste Classification Guidelines to include general fill, in addition to landfill acceptance will provide a generic criteria set, which can use less stringent criteria via a specific RROE application, subject to assessment by the EPA. This should improve the uniformity of RRO criteria and provide the ability to apply low risk RRO materials in specific land locations or areas such as denuded farmland.

This submission has been prepared with the input and assistance of members of ASBG's Policy Reference Group (PRG).

Should you require further details and clarification of the contents of this submission please contact me.

Yours Sincerely

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APPENDIX 1

ASBG's Framework Approach to a Revamped/Reengineered Recycling System

ASBG has developed this long term framework, based on member input, in response to the increasingly difficult economic environment of recycling across Australia. To provide confidence that businesses are concerned about recycling ASBG is looking to maintain existing recycling levels in this time frame. ASBG's key actions include:

Scale of the issue and response: Identification of the scale of the economic problems affecting recycling. Its purpose is to identify the extent of support and investment required in the sector. Minimising cost to revamp recycling is essential.

Physical Approaches: The two bin recycling system is no longer effective and new systems are required in collection, transport, MRFs and recycling facilities aiming for lower contamination levels and higher quality recycled products attracting higher prices. A key element in this approach is to develop a national *Agreed standardised set of source separated categories* for collections, which is likely to increase the number of categories for collection. Standardised inputs with should provide increased certainty in reengineering MRF and other recycling facilities. Improved education of the public and other recyclate generators will be simplified and revamped following this standardisation.

Markets – New and expanding existing: Improved lower contamination levels via use of *source separated systems* will deliver higher classes of recyclate for domestic and international markets. However, there is a need to develop new end uses for recycled materials, such as those based on engineered fill, down cycling and other markets. Adoption of recycled content procurement policies by Government is also required. For example, require the use of glass fines for engineered materials by government agencies in infrastructure, provided standards are met. *Industry innovation* → Supporting concept to market ready innovative new recycled materials, processes, products and end markets, including regulatory and grant supports and removal of green tape.

Regulatory / Policy Framework: Working with industry and the waste sector to deal with recycling in a cooperative manner to develop efficient governance and remove over regulation [green tape] on recycling, such as:

- *Outcome* based [environmental] measures preferred with *process and activity* based measures avoided.
- Avoid regulation of B2B by-product recycling where a common raw material used in another *bond fide* process.
- Promote the use of EfW, including use of existing industrial thermal processes.
- Establish the national waste database, increased waste tracking and economic modelling of waste and recycling.
- Review waste levies to: better support recycling via hypothecation and levy discounts on their waste streams, lowered to levels to reduce illegal dumping and disposal and to disincentivise long haulage of waste.

- Government to lead in progressing regulatory approvals for new and reengineered recycling facilities.
- Review of planning rules to increase community responsibilities for their wastes on a regional basis as in the UK.
- Remove planning approval road blocks to waste infrastructure, recognising waste is also a local health issue.

Financial Support and Approaches: including new grant schemes for new kerbside bins, MRF upgrades, and market support. Revised contracts to better share the risks in recycling markets between Councils and contractors. Development of low cost finance such as Australia's CEFC to support the revamped recycling system funding required.

Main Actions for Governments based on the above:

Progress an efficient; low-cost revamped reengineered recycling system with actions to:

1. Develop Agreed standardised set of source separated categories for collection.
2. Develop *recycled product standards* that are cost effective and environmentally responsible.
3. Review waste legislation, levies and polices to enable recycling to become efficient and profitable again.
4. Establish National, State and Territory Taskforces to enable the above actions, which include all major stakeholders to facilitate a new revamped and reengineered recycling system for Australia.
5. Establish improved financial funding for improved recycling.
6. Identify the scale of the recycling issue, the economic impact and support required and to establish the balance between onshore and off shore processing.