Department of the Environment

Transport and environmental regulation of hazardous waste – opportunities for harmonisation

FINAL REPORT

July 2015

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Executive summary

The Department of the Environment commissioned GHD in February 2015 to undertake a comparative analysis of how hazardous wastes are regulated under both transport (mostly dangerous goods) and environmental regulations. The project was to identify and recommend on opportunities to achieve greater regulatory harmonisation at national and jurisdictional levels, as well as opportunities within hazardous waste environmental regulation. In addition, any relevant lessons from recent national transport regulatory harmonisation were to be documented.

Hazardous waste within Australia is predominantly **transported by road and rail**, whereas international movement is by sea and potentially by air. With the harmonisation focus a domestic one, this project does not address issues relating to sea or air transport.

GHD has **consulted** with industry, environmental protection regulators, transport of dangerous goods regulators and national agencies in the transport and work, health and safety sectors. GHD has undertaken targeted **comparative investigation of legislation and regulations**. **Opportunities for harmonisation** were distilled from the consultation results and assessed in terms of both likely (environmental and industry) benefit and feasibility.

Businesses involved with the movement of hazardous wastes typically interact with **three core regulatory regimes**: work health and safety (WHS); transport of dangerous goods (TDG); and environmental protection. In light of this, the project was extended to include analysis of regulation of hazardous waste under WHS (hazardous chemical) regulation.

The hazardous waste movement cycle and regulation

Industry interaction with government regulation works broadly as follows.

Safety data sheets, issued under **Work, Health and Safety (WHS) regulations**, provide information on the original or 'virgin' hazardous content of the goods, and are prepared by Australian businesses for hazardous chemicals they import or manufacture. If a process generates a waste which is a 'new' hazardous chemical, a new safety data sheet is required.

Drivers, licensed under **transport of dangerous goods (TDG) regulations** and in some cases also **environmental protection regulations**, transport the hazardous wastes in vehicles licensed under both regimes and placarded under TDG regulations.

Each hazardous waste movement, subject to exemptions and differing policies of states and territories, is tracked from origin to destination and is then treated or disposed of in accordance with environmental protection regulations.

Regulatory regimes – key features

Work, health and safety (WHS)

WHS laws, aimed at reducing risk to health and safety in the workplace, are now uniform in six jurisdictions including the Commonwealth. The remaining three jurisdictions, Victoria, Western Australia and the Australian Capital Territory, are also accepting classification and labelling in accordance with the new laws. The laws are based on **Australian Model Work Health and Safety Regulations**, developed under a 2011 Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety (OHS). A five year transition period, during which the previous OHS chemicals requirements are also accepted, is in place for the classification, labelling and safety data sheet aspects of the WHS laws. It ends on 31 December 2016.

Safe Work Australia, jointly funded by governments under the intergovernmental agreement, develops policy dealing with compliance and enforcement.

The regulations pick up the **United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS)**, a single internationally agreed system of chemical classification and hazard communication through labelling and safety data sheets. This replaces previous classification based on 'hazardous substances' and dangerous goods numbering (see below).

Under the model regulations, facility licences are being substantially replaced by 'lighter touch' **notification arrangements**, where hazardous chemicals exceed specified levels.

Transport of dangerous goods (TDG)

TDG regulations, aimed at preventing accidents and damage to the environment and at not impeding the movement of goods, have long been uniform in Australian jurisdictions. The **Australian Code for the Transport of Dangerous Goods by Road and Rail (the ADG Code)**, now in its seventh edition, responds to the United Nations Recommendations on the Transport of Dangerous Goods – Model Regulations, updated every two years.

There are nine broad classes of dangerous goods, with **Class 9 'Miscellaneous dangerous substances and articles'** operating as a residual catch-all for hazardous wastes. Covering testing procedures, labelling, placarding and other areas, regulations are risk-based and threshold-based, with licensing and enforcement activity mainly concentrated on 'placard load' operations – i.e. those that exceed 500 kilograms net mass or 500 litres capacity, with lower limits for infectious substances and flammable gases.

The TDG national consistency effort is **institution-rich**. The **Department of Infrastructure and Regional Development** represents Australia on the relevant United Nations sub-committee. The **National Transport Commission**, an intergovernmental agency with responsibility to develop, monitor and maintain nationally consistent regulation relating to road, rail and intermodal transport, maintains and develops the ADG Code for consideration by the ministerial Transport and Infrastructure Council. This is via the **Transport of Dangerous Goods Maintenance Advisory Group**, comprising state and territory dangerous goods regulators, with the Commonwealth in an observer role. The **Competent Authorities Panel**, with similar membership and a state/territory chair, deals with nationally significant code implementation matters.

In 2012 the panel issued an exemption from individual packaging requirements for **used lithium ion batteries**, a growing hazardous waste stream with a commercial market value, where mixed with other used batteries.

Hazardous waste environmental regulation

Hazardous waste is regulated to minimise adverse impacts on the environment and (non-occupational) human health. Ensuring that Australia meets international agreements on waste and hazardous substances is also an important objective at Commonwealth level.

The 1994 **National Environment Protection (Movement of Controlled Waste between States and Territories) Measure** picks up the 1989 **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal**. With its guiding principles of polluter pays, user pays, proximity and product stewardship, the convention aims, inter alia, to restrict international movements of hazardous waste and to establish a regulatory system to manage cases where these movements are permissible and are consistent with environmentally sound management.

In Australia's federal system, the convention's transboundary regime has been applied to domestic movements of hazardous waste, as well as to international ones. As an **add-on to existing jurisdictional environment protection regulation**, each jurisdiction has implemented the NEPM in the context of its own requirements regarding coverage, coding and classification of hazardous wastes, as well as licensing of waste generators, transporters and receivers and other areas including disposal and treatment arrangements.

In contrast to transport of dangerous goods regulation, the hazardous waste national consistency effort is relatively **institution-poor**. While the **Department of the Environment** represents Australia on Basel convention committees, there is no international impetus to unify waste codes (and no strategic objective against which this would be an appropriate action). Domestically, the **NEPM Implementation Working Group** involves all jurisdictions through a state/territory chair for consultation and information exchange, without aiming to bring jurisdictions into full alignment.

Learning from national transport regulatory reform

National consistency in land transport regulatory arrangements – in areas including heavy vehicle mass and dimension limits, road user charging arrangements, driving hours, road access for larger, more productive vehicles, rail safety and rail operational practices – is a long-standing Commonwealth policy objective.

National policy goals centre on consistency that will lead to improved productivity and better safety outcomes. Land transport is also an area where, given Australia's 'island continent' geography and in contrast to aviation and shipping, there has not been the benefit of a strong accompanying push for harmonisation at the international level. Moreover, domestically, economic, geographic and infrastructure factors have often pushed jurisdictions in somewhat different directions.

Since the early 1990s, there has been a strong institutional response to the consistency challenge. Establishment of the **National Road Transport Commission** in 1991 (since 2003 the National Transport Commission, with a mandate that includes rail), tasked with developing consistent regulations for consideration by ministers, led by 2005 to: uniform heavy vehicle charges; uniform higher mass limits; and 'chain of responsibility' legislation, which extended legal responsibilities beyond the vehicle driver to more senior decision-makers in the supply chain.

Transport of dangerous goods, already well harmonised before the 1990s, due to a long-standing international harmonisation effort, has benefitted from the additional institutional architecture. The work of the National Road Transport Commission led specifically to **incorporation of the 'chain of responsibility' approach into TDG regulations** and establishment of the Competent Authorities Panel. Today the National Transport Commission continues to develop and maintain the ADG Code.

Over the course of the 2000s, road transport reform encountered increasing difficulty in areas such as securing road access, often from local government, for larger, more productive heavy vehicles. The response of the Council of Australian Governments, Western Australia aside, was to agree in 2009 to establish a **National Heavy Vehicle Regulator** to manage road access arrangements and to administer a newly codified set of Heavy Vehicle National Law.

Benefits of implementing the Heavy Vehicle National Law were assessed at between $5.6 billion and $12.4 billion in 2011 net present value terms. The Productivity Commission is to assess the overall economic impact of the new arrangements (and of new arrangements for rail safety regulation and maritime safety regulation) in 2016.

The National Heavy Vehicle Regulator commenced operations in February 2014 on a six jurisdiction basis, with Western Australia and the Northern Territory not participating. However, **processing of heavy vehicle road access permits** was temporarily suspended, due to an unexpectedly high volume of applications. Despite this, there are indications of a streamlining of procedures in State/Territory and local government spheres having eventuated, to the benefit of industry. In addition, the two non-participating jurisdictions are moving to mirror the national law in their own arrangements, seeking to minimise inconsistencies.

General implications of this history are as follows.

- An international harmonisation impetus is positive for national regulatory consistency, but an institutionalised national advisory or developmental effort, backed by some degree of implementation coordination, is beneficial even in circumstances where, as with TDG, the international harmonisation impetus is already strong
- The weaker the international harmonisation impetus and the stronger the domestic pressures working against consistency, the greater is the importance of a national advisory and developmental effort, as seen with general road and rail reform
- These circumstances also provide a rationale for a nationally-based implementation approach, as is now being pursued with the National Heavy Vehicle Regulator
- National reforms are worth pursuing even if some jurisdictions, for their own reasons, remain outside the framework. The national approach may still have an influence in minimising differences with the regimes of non-participating jurisdictions.

In the **hazardous waste regulatory sphere,** the international harmonisation impetus under the Basel Convention is relatively weak, providing an apparently strong rationale for some institutionalised advisory effort to pursue national regulatory consistency. At the same time, the domestic impetus for differential regulation is possibly less strong than in the road transport sphere (and there is no requirement to engage local government), suggesting that a national regulatory administration entity may not necessarily be needed.

Issues from consultation

Industry and government representatives consulted identified a large number of issues. Matters relating to more than one regulatory system, including those involving comparison of different regimes, are listed first.

Hazardous waste environmental, TDG and WHS regulatory issues

- The Australian Trucking Association commented that the **hazardous waste environmental regulations are often more onerous than the dangerous goods regulations, for a lower level of risk**. Some businesses no longer transport hazardous waste, partly for that reason. In particular, businesses contacted noted the challenges of high licensing costs and high associated nominated vehicle and driver costs.
- Industry supported a systematic effort to ensure **full alignment between NEPM waste codes and dangerous goods codes**. In the words of one company, *"a thoughtful consideration of mixtures and labelling is needed"*. NEPM codes should also be linked to GHS symbols in the case of packaged or 'less than placard load' waste vehicles.
- In addition, mislabelling can result from too ready an acceptance by waste generators of the 'virgin' product information contained in the safety data sheet.
- **Replacing paper consignment notes** carried by heavy vehicle drivers with mobile electronic devices would provide a more robust system in the event of accidents. However, due to the number of parties involved, this should be a longer term goal compared with an on-line waste tracking system (see below).

- **Environmental regulators** were seen as not always certain of the regulatory requirements, in responding to queries from industry, creating an additional source of delay and difficulty. TDG and WHS regulators were seen as more pro-active with a more 'here to help you' type approach.
- Industry would like to see greater consistency in both hazardous waste and TDG **enforcement**. In the TDG sphere, New South Wales enforcement activity was regarded favourably, involving high visibility campaigns. Industry considered that smaller hazardous waste operators can receive less attention.
- Industry respondents expressed some frustration with **communication** and the level of information about forthcoming regulatory changes, with regard to both the current five year transition to GHS arrangements and the ADG Code and consequential difficulties in advance planning of training and other areas.
- The Australian Battery Recycling Initiative noted more stringent TDG requirements regarding **used lithium ion batteries** being transported for recycling compared to arrangements in Europe.
- Both industry and government regulators considered **national leadership** was essential for good regulatory outcomes. Leadership was viewed largely positively in the transport of dangerous goods area and as largely lacking in the environmental protection area, while New South Wales's initiatives, notably with regard to on-line hazardous waste tracking, were viewed favourably.

Hazardous waste-specific issues

- Industry respondents considered that the existence of multiple jurisdiction-specific waste tracking regimes, each with its own waste classifications, codes and administrative requirements, complicated their operations and added to the cost of doing business. The appropriate solution is to **classify hazardous wastes uniformly and consistently**, based on harm to the environment and the controls needed. A **single national waste tracking system** should also include hazardous wastes exported under permit.
- Government regulators were highly aware of the limitations of existing arrangements for industry. In addition, they noted the difficulty in constructing a hazardous waste **'mass balance'** at jurisdiction level. Mass balances could be especially useful in monitoring stockpiling (see below). While, under the NEPM consignment authorisation system, each jurisdiction has full information on hazardous waste transported into the jurisdiction, it can be prohibitively difficult to gain comparable information on hazardous waste leaving the jurisdiction – because of the number of jurisdictions, as well as possible hazardous versus non-hazardous classification differences in the other jurisdiction.
- Industry was supportive of New South Wales' move to an **on-line waste tracking** system and considered all jurisdictions should follow suit.
- The Australian Battery Recycling Initiative noted, with regulator concurrence, that for used lead acid batteries, as a multi-waste product, it was often difficult to determine what waste code should be applied. It considered that Western Australia's introduction of **codes for three battery types** (used nickel cadmium, used nickel metal hydride and used lead acid) should be replicated in the NEPM and other jurisdiction arrangements, together with codes for other batteries (alkaline mixed dry cell and lithium/lithium-ion).
- While there were different views among regulators, most doubted the need for government **tracking of waste movements for recovery**, notably used batteries. With regard to the Department of the Environment's international reporting obligations, ABRI suggested that data could be obtained more efficiently from the small number of used lead acid battery processors.
- Tomago Aluminium noted that, where landfilling is not permitted, due to the concentration of a chemical exceeding a threshold, it is necessary to **stockpile until the waste quantity is sufficient** to justify the cost of immobilisation or treatment. In addition, aluminium spent cell

liner waste has been stored in warehouses for many years, with economically viable reuse options only recently becoming available.

- Regulators noted the challenge in **identifying and managing stockpiles**, which can occur at the point of generation, transfer or receipt. Instances where stockpiles are found and require removal, often associated with businesses experiencing financial difficulties, are ongoing.
- Differences in **storage regulatory thresholds** can pose challenges for businesses in ensuring that they are compliant in all jurisdictions. Charging approaches also differ, with fees a function of thresholds, type of hazardous waste stored, and licence type (i.e. premises or activity based).
- Businesses considered that **harmonisation in restricting landfilling** would encourage investment in waste treatment facilities and a national system of waste codes and tracking would ease transport to such facilities. This will be important for managing e-waste in the future.

Assessment of harmonisation opportunities

Opportunities were rated as being of 'high', 'medium' or low' (environmental and industry) benefit and as feasible in the near term, medium term, long term, or very long term. Near term feasibility is where prior re-engineering of regulatory processes is considered nil or very limited. Medium term feasibility is where harmonisation development work will be required within hazardous waste environmental regulation or between regimes. Long term feasibility would require broad-ranging review and harmonisation work (within hazardous waste environmental regulation).

Ratings should be considered provisional pending detailed analysis, where required. For example, in those cases where the costs of harmonisation are likely to be significant, quantification of benefits would be appropriate.

Harmonisation opportunities across regulatory systems

The following harmonisation opportunities between TDG regulation, WHS regulation and hazardous waste environmental regulation were identified.

1. Harmonise the approach to risk, where TDG involves a better matching of regulatory requirement to risk than the hazardous waste regime
2. Identify and remove gaps in dangerous goods coding of hazardous wastes
3. Replace paper consignment notices, which accompany the load inside the vehicle, with mobile devices
4. Remove the requirement to license vehicles and, where applicable, drivers, under environmental protection arrangements in addition to TDG regulation
5. Harmonise approaches to enforcement, particularly aligning the environmental protection approach with TDG best practice
6. Coordinate and improve communication with industry regarding upcoming changes.

Removal of environmental road vehicle licence requirements, where a dangerous goods licence requirement exists and improved communication with industry are each assessed as feasible in the near term and of high benefit.

Improved dangerous goods coding of hazardous wastes is rated as feasible in the medium term and of medium benefit. This benefit rating is provisional, pending investigation of the extent of health and environmental risk that would be avoided.

Harmonised approaches to risk and to enforcement are rated as feasible in the longer term and of high benefit. Harmonisation of jurisdiction hazardous waste regulatory regimes, including eliminating some current regulation, would be required before these can be achieved (see below).

Paperless trucks, also of high benefit, are assessed as feasible in the very long term. Here, coordination on a whole of road transport sector basis, i.e. involving non-dangerous goods vehicles, would likely be required.

Improved communication with industry is rated as high benefit and feasible in the medium term, in particular following development of nationally consistent hazardous waste codes.

Table ES1 Harmonisation opportunities across regulatory systems

No	Proposal	How feasible?	How much benefit?
1	Harmonised approach to risk		
2	Improved dangerous goods coding of hazardous wastes		
3	Paperless trucks		
4	Removal of road vehicle environmental licence requirements		
5	Harmonised approach to enforcement		
6	Improved communication with industry		

Key:

- Feasible in the near term; high benefit
- Feasible in the medium term, following harmonisation development work within environmental protection; medium benefit
- Feasible in the long term, following broad-ranging review and harmonisation work within environmental protection
- Feasible in the very long term and likely to require coordination on a whole of road transport sector basis

Harmonisation opportunities in hazardous waste environmental regulation

Identified opportunities within hazardous waste environmental regulation are as follows.

1. Establish a nationally consistent set of hazardous waste codes and definitions
2. Establish additional and consistent codes for used products containing multiple wastes, notably batteries and e-waste
3. Establish a national on-line waste tracking system, unifying and removing inconsistencies between existing intra-jurisdictional, inter-jurisdictional and import/export systems
4. Put in place consistent hazardous waste storage thresholds as part of licensing harmonisation
5. Harmonise approaches to hazardous waste categorisation for disposal and treatment, including levy arrangements
6. Improve and harmonise approaches to enforcement.

In addition, there is a 'threshold' opportunity to **eliminate regulation**, which should be considered before harmonisation of existing regulation is undertaken.

Elimination is not relevant to the coding opportunities (nos 1 and 2) as consistent coding is essential for improved and streamlined national reporting under the Basel Convention obligations. It is unlikely to apply to harmonising approaches to disposal and treatment (nos 6 and 7), given the centrality of appropriate disposal and treatment to the goals of hazardous waste regulation. However, it is very relevant to the opportunities to establish a national on-line tracking system, consistent storage thresholds and consistent licensing arrangements (nos 3,4 and 5 respectively).

Subject to this threshold consideration, all of the identified opportunities are assessed as high benefit.

Table ES2 Harmonisation opportunities – hazardous waste-specific

No	Proposal	How feasible?	How much benefit?
1	Consistent set of NEPM codes and definitions		
2	Additional NEPM codes for used products with multiple wastes		
3	Consistent paperless consignment authorisations		
4	Consistent storage thresholds		
5	Consistent approaches to disposal and treatment		
6	Improved and consistent enforcement		

Key: As per table ES1

Adoption of additional NEPM codes for used products containing multiple wastes is considered both highly feasible and of high benefit.

Consistent NEPM codes, a single national on-line tracking system and consistent storage thresholds will all require significant development work and are considered feasible for the medium term. A national tracking system that removed the requirement to track certain hazardous wastes, for example, wastes destined for recovery, should ensure that alternative arrangements for data collection to meet international reporting requirements are in place.

More time is likely to be needed to achieve consistent approaches to disposal and treatment and improvement and consistent enforcement. Better enforcement may require additional resources, which could possibly be sourced from establishment of a simplified, nationally consistent tracking regime.

Conclusions and recommendations

Harmonisation opportunities across regulatory systems

A threshold difficulty in harmonising across regulatory systems is the need for prior harmonisation between jurisdictions' hazardous waste environmental regulatory regimes. Absent this, no 'national partner' exists that could work with the TDG and WHS regimes to pursue the opportunities in an efficient manner for common benefit.

An exception is the **opportunity to remove the requirement to license vehicles** and, where applicable (i.e. in Victoria and Western Australia) drivers, under environmental protection regulation in addition to TDG regulation. In this instance, no change in TDG regulation or practice is likely to be required. Moreover, while nationally consistent action is highly desirable, it is not essential that all jurisdictions act uniformly.

***Recommendation 1**: That hazardous waste environmental regulators, in consultation with TDG regulators as required, consider removal of transport licensing requirements where dangerous goods licensing arrangements are already in place and recommend a nationally consistent implementation strategy.*

In contrast, a nationally consistent approach among environmental protection regulators is essential in order to improve **dangerous goods identification and labelling of hazardous wastes**. A common position will be essential in liaising and negotiating as needed with TDG regulators. This could include a possible requirement for Australia, through the Department of Infrastructure and Regional Development, to raise matters in the UN ECOSOC Sub-committee of Experts on the Transport of Dangerous Goods.

The issue, however, requires involvement of persons from all three regulatory regimes, to identify, in consultation with industry, a full set of problem areas and gaps and to set priorities. In particular, materiality, in terms of potential public safety risk in transport, is not currently known.

***Recommendation 2:** That a joint jurisdiction-industry working group: (a) identify key problem areas in the existing ADG coding of hazardous wastes; (b) prioritise areas on the basis of assessment of the extent of any public safety risk in transport and other relevant factors; (c) make recommendations to address identified problems and prepare a report to governments.*

Harmonisation opportunities within hazardous waste environmental regulation

In terms of broad regulatory models, the project finds that hazardous waste environmental regulation is not well aligned with the parallel TDG and WHS regulatory regimes. These two regimes:

- Are at least largely nationally uniform in core areas (with fees and charges the main exception)
- Focus both regulatory requirement and enforcement activity on thresholds, thereby better matching regulation with risk
- Limit routine industry interaction with government to licensing (and, in the WHS sphere, increasingly to 'lighter touch' notification) and audit/enforcement activity.

In contrast to hazardous waste environmental regulation, the TDG and WHS regimes have also each had the benefit of recent – and in the case of TDG also long-standing – institutionalised nationally coordinated action to develop and maintain uniform model regulations for adoption by jurisdictions.

Comparable harmonisation within hazardous waste environmental regulation is important to reduce the regulatory burden on industry and potentially improve environmental outcomes through, for example, better facilitating recovery of hazardous wastes with commercial value and better incentivising investment in hazardous waste treatment. Elimination of regulations should also be considered, consistent with maintained or improved environmental outcomes and with continuing to meet Australia's international reporting obligations under the Basel Convention.

In focusing on learnings from national transport regulatory reform, this report highlights the value of a dedicated government agency with a 'day job' to engineer nationally consistent regulatory recommendations among separate jurisdictions. It follows that there is a potential 'catch-22' if those with the specialist knowledge are not sufficiently available to inform the regulatory design process, as may more easily happen in the absence of such an agency. As an initial response, a short-term working group, drawn primarily from environmental regulators and which limits the initial call on the time of key people, may be appropriate to develop a reform strategy.

Recommendation 3: *That a working group involving environmental agencies of all nine jurisdictions consider the proposed hazardous waste regulation-specific actions outlined in this report (see 'Assessment of harmonisation opportunities' above) and develop a recommended strategy, including options for appropriate short, medium and longer term institutional arrangements to deliver the strategy.*

Finally, as both an island continent and a federation, Australia faces weaker domestic pressure to harmonise its hazardous waste regulatory arrangements than many other nations. Combined with the Basel Convention's orientation towards both restricting movement of hazardous wastes (under the 'proximity principle') and involving government in the tracking of hazardous waste movements, the risk that the approaches of separate jurisdictions will impose high costs on industry without offsetting benefit is real.

As part of a process to design better national regulatory arrangements, including potentially eliminating certain regulations (e.g. elements of hazardous waste tracking) while continuing to meet international reporting obligations, it would be worthwhile to research domestic best practice in other countries, including federations and unitary systems and countries with and without adjoining land borders.

Recommendation 4: *That the Department of the Environment undertake a benchmarking study of domestic arrangements regarding the coverage and nature of regulations relating to the movement of hazardous waste in other relevant countries, including countries with federal systems, countries with unitary political systems and countries with and without contiguous land borders and make the results available to jurisdictions.*

Table of contents

Table index

Figure index

Appendices

Abbreviations

ABRI	Australian Battery Recycling Initiative
ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail
DG	Dangerous goods
DIRD	Department of Infrastructure and Regional Development
ECOSOC	(United Nations) Economic and Social Council
EPA	Environment Protection Authority
GHS	Globally Harmonized System (of Classification and Labelling of Chemicals)
NEPM	National Environment Protection Measure – in all cases, the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure
NHVR	National Heavy Vehicle Regulator
NTC	National Transport Commission
OECD	Organisation for Economic Co-operation and Development
OHS	Occupational health and safety
ONRSR	Office of the National Rail Safety Regulator
PCBU	Person conducting a business or undertaking (involving hazardous chemicals)
SDS	Safety Data Sheet (previously the 'Material Safety Data Sheet')
TDG	Transport of dangerous goods
ULAB	Used lead acid battery
UN	United Nations
UNECE	United Nations Economic Commission for Europe
WHS	Work health and safety

1. Introduction

1.1 Project context, objectives and scope

Whereas hazardous wastes present potential threats to human health and the environment when improperly stored, treated or disposed, dangerous goods present an immediate hazard to human health, property or the environment, due to their physical, chemical or toxicity properties. However, many hazardous wastes are also dangerous goods. This gives rise to parallel regulation and with it the possibility of regulatory duplication and regulatory gaps, both undesirable – and also opportunities for harmonisation.

The Department of the Environment (DoE) commissioned GHD in February 2015 to undertake a comparative analysis of how hazardous wastes are regulated under both transport (mostly dangerous goods) and environmental regulations. The project was to identify and recommend on opportunities to achieve greater harmonisation of hazardous waste and transport regulation, at national and jurisdictional levels and opportunities within hazardous waste environmental regulation to achieve greater regulatory harmonisation at both of these levels. The project links to the Australian Government's commitment to reduce the burden of "red tape" on business, community organisations and individuals, without compromising key policy objectives, including maintaining human health and safety and protecting the environment.

Consistent with the 'domestic' focus of the project objectives, the project largely excludes transport of dangerous goods regulation in the sea (and air) transport modes. These are relevant to the international movement of hazardous waste but not to domestic movement. Domestic transport is undertaken by road and to a lesser extent by rail. See also Section 2.4.

The project includes issues associated with storage and stockpile definitions and thresholds under both regimes. In the course of the project, the scope was explicitly extended to include the intersection with work health and safety (WHS) regulation, which addresses the closely related area of storage and handling of hazardous chemicals.

The project scope also includes lessons learned from recent national transport regulatory harmonisation relevant for hazardous waste.

1.2 Project methodology

The project strategy was to identify opportunities for harmonisation that:

- Can offer significant industry and economic benefit
- Improve environmental outcomes and
- Are administratively feasible.

To achieve this, information collection targeted three groups of stakeholders, supported in each case by documentary research (consultation phase):

- Industry – to obtain information on problems and their impacts
- Regulators – to learn about problems, impacts and gauge feasibility of solutions
- Transport policy makers – to gain insights into possible lessons from recent transport national regulatory reform.

The analysis phase involved sorting the issues identified during consultation into opportunities for harmonisation, firstly, between dangerous goods and environmental protection regimes and, secondly, within the environmental protection regime. The opportunities were then assessed in terms of both benefit (environmental, industry and other) and feasibility. Feasibility was approached from a time perspective (i.e. near term, medium term, long term and very long term), with the time assessments informed by the complexity of the task and prior steps involved.

A workshop involving government agencies at which stakeholder feedback and an initial sorting of harmonisation opportunities was presented for discussion, contributed to the analysis phase.

Conclusions and recommendations are based on the analysis.

Comments on the draft report for this final report were obtained from the Department of the Environment and from the national government agencies consulted (see Section 1.3). The Australian Battery Recycling Initiative and Toxfree Australia provided information for the first and third case studies respectively (see Section 5).

1.3 Project consultation

To obtain wide consultation coverage, the project prepared a consultation issues paper in March 2015 which was circulated to a total of 36 government, business and association stakeholders, inviting response over a three week period. The project also approached directly for interview all environmental protection regulators, all dangerous goods transport regulators and a number of environmental service companies and road transport companies.

The project received submissions from and/or consulted 10 companies and associations, 13 state/territory regulators and one national regulator. The project also consulted four national agencies (Department of Infrastructure and Regional Development, National Heavy Vehicle Regulator, National Transport Commission and Safe Work Australia). Further details are contained in Appendix A.

Nine government agencies took part in the project workshop in April 2015, attending GHD offices in eight capital cities for a phone hook-up.

1.4 Report outline

This report is structured as follows:

- Section 2 briefly profiles the hazardous waste sector and hazardous waste transport in Australia
- Section 3 outlines the key regulatory landscape relating to the storage, transport and management of hazardous waste
- Section 4 sets out transport regulatory reform institutional arrangements and key developments and identifies lessons that may be applicable to hazardous waste
- Section 5 provides issues and solutions arising from the project consultation
- Section 6 identifies harmonisation opportunities, drawing from the previous sections and assesses their possible benefits and administrative feasibility
- Section 7 provides conclusions and recommendations.

1.5 Acknowledgment

GHD acknowledges gratefully the cooperation of many individuals in businesses, associations and government agencies in taking the time and care to provide information and insights to the project.

2. Transporting hazardous waste

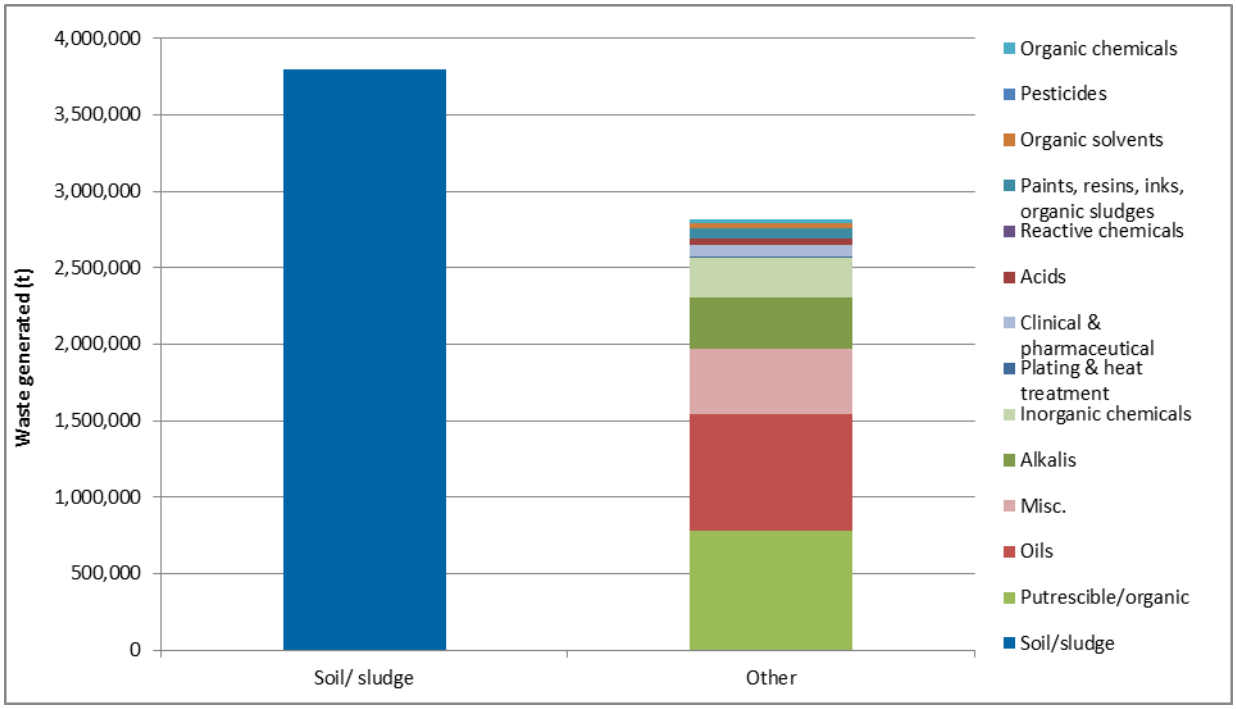
2.1 Hazardous waste generation

Australian industry generated an estimated 6.6 million tonnes of hazardous waste in calendar year 2012 (Figure 1)[1]. The six largest categories are contaminated soil/sludge, largely a construction industry waste (57 per cent of the total), putrescible/organic (12 per cent), oils (11 per cent), miscellaneous (6 per cent), alkalis (5 per cent) and inorganic chemicals (4 per cent).

Classification differences impact estimates of magnitudes to an extent. For example, data recording for contaminated soils for all jurisdictions other than Victoria has deficiencies, while asbestos and tyres are classified as non-hazardous in Western Australia and Victoria respectively[2].

Hazardous waste makes up not less than an estimated 12 per cent of total waste generation in Australia.[3]

Figure 1 Hazardous waste generated by waste type, 2012

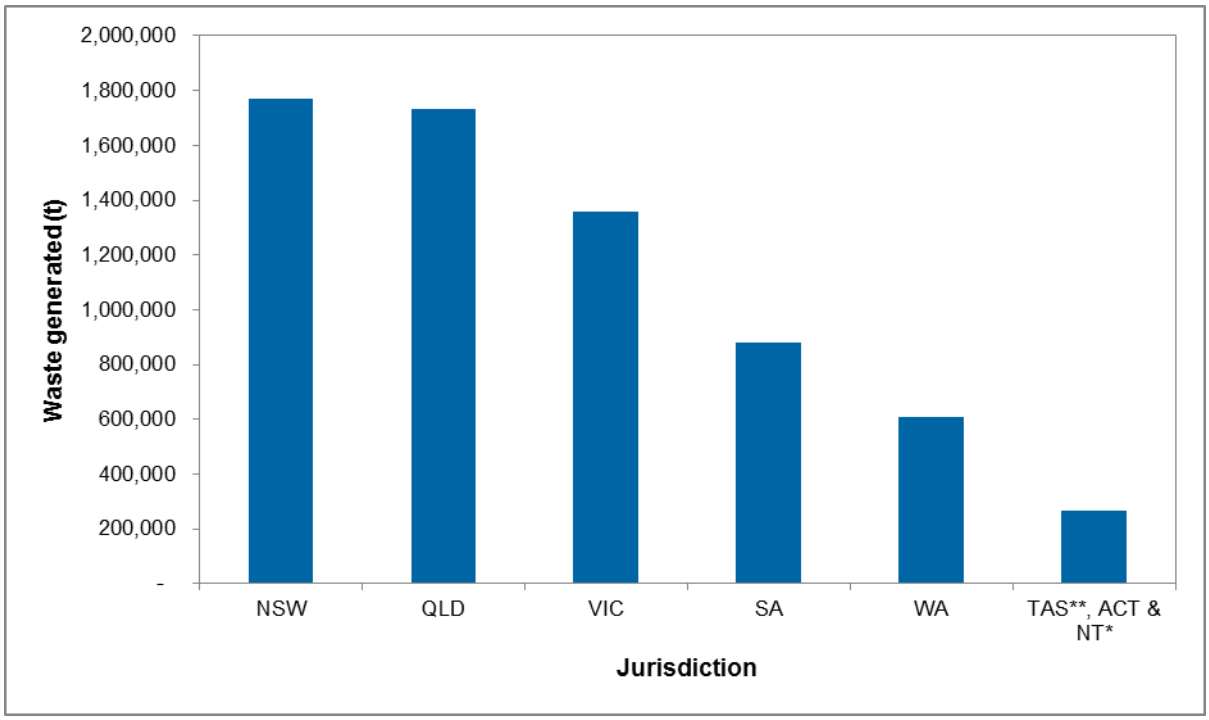


Source: Blue Environment (2014)

Figure 2 shows the waste totals for 2012 by jurisdiction. Actual numbers can be volatile between years, particularly due to fluctuation in the large soils / sludges category. New South Wales, Queensland and Victoria together generated 73 per cent of the national total, while South Australia and Western Australia comprised 23 per cent and Tasmania, the Australian Capital Territory and the Northern Territory 4 per cent.[4]

[1] Blue Environment (2014)
[2] ibid p.17
[3] Estimated waste generated in Australia in 2009-10 totalled 53.2 million tonnes (ABS (2013), p.4).
[4] As the latter three jurisdictions do not track intra-jurisdictional waste movements – the primary means of collecting hazardous waste generation data - it is likely that the percentage of waste generated in these smaller jurisdictions is understated.

Figure 2 Hazardous waste generated by jurisdiction, 2012



Note: TAS**, ACT and NT* hazardous waste total is likely to be understated (non-waste tracking jurisdictions).

Source: Blue Environment (2014)

2.2 Hazardous waste moved between jurisdictions

An estimated 175,000 tonnes of hazardous waste was moved between states and territories in the 2013 financial year.[5] This equates to 2.6 per cent of total hazardous waste generated in that year.

More than 50 per cent of the transported hazardous waste comprised inorganic chemicals, in particular, metal compounds.[6]

Metals destined for recovery at processing sites in Australia or overseas are likely to comprise a sizeable proportion of hazardous waste movements between jurisdictions. Hazardous wastes moved for recovery include:

- Used lead acid batteries, of which around 107,000 tonnes are estimated to be processed domestically each year[7]
- E-waste (televisions, computers and other electronic products) containing lead, bromine and mercury (as well as often non-hazardous precious metals including gold, palladium, platinum and silver)
- Spent pot lining waste arising from the process of reducing alumina to aluminium.

2.3 International movement of hazardous waste

In the 2013 calendar year, permits were issued for 71,000 tonnes of hazardous waste international exports for purposes of recovery. These numbers can fluctuate between years, with 19,000 tonnes the corresponding figure for 2012.[8]

Australia also imports hazardous waste for processing from neighbouring countries (New Zealand, East Timor and South Pacific nations).

[5] National Environment Protection Council (2013)
[6] Ibid p.55
[7] Warnken ISE (2010)
[8] Departmental communication, March 2015

2.4 Modes of transporting hazardous waste

Rail and road, especially the latter, are the main transport modes used for transporting hazardous waste within Australia. This is as per industry advice and is also consistent with the general profile of the domestic freight task. Measured on a 'tonne-kilometres travelled' basis:

- Rail freight makes up 40 per cent of the task, with key roles in longer distance and inter-capital manufactured goods freight (including, in the hazardous waste context, shipping of used lead acid batteries from Perth to the east coast for processing) and especially bulk mineral 'mine to port' exports
- Road transport comprises 39 per cent of the task, with particular advantage in shorter distance, door to door transport in a very wide variety of general, industrial and bulk freight
- Coastal sea freight at 21 per cent primarily involves very long distance fuel and bulk resource transport between port locations
- Air freight involves some time-sensitive and high value products and is vanishingly small on a weight and distance basis.[9]

In addition to road and rail transport to port, sea transport is the predominant, if not exclusive, mode of transport for hazardous wastes exported to other countries (and imported from other nations), for disposal or recovery purposes.

[9] Bureau of Infrastructure, Transport and Regional Economics (2006), p1ff.

3. The regulatory landscape

Businesses involved with hazardous wastes typically interact with at least three regulatory regimes over the hazardous waste 'life cycle' (refer to Figure 3):

- Storage and handling of hazardous substances
- Transport, including transport of dangerous goods
- Environmental protection, including movement of controlled (hazardous) wastes.[10]

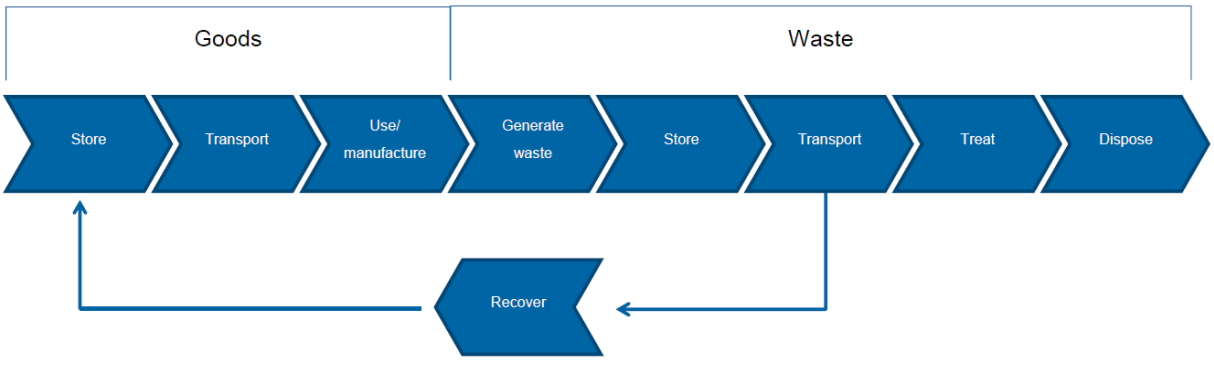
Newly manufactured (product) goods are handled and packaged to meet work health and safety (WHS) regulatory requirements for storage and handling of hazardous chemicals. Safety data sheets provide information on the hazardous (physicochemical or health hazard) content of the goods and how they affect health and safety in the workplace. If a process generates wastes which are a 'new' hazardous chemical, the business generating the waste should create a safety data sheet for the waste product.

Before being transported, for use in consumption or as inputs to construction, further manufacturing, or other processes, the vehicles are placarded in accordance with transport of dangerous goods regulations. Vehicles and drivers move the goods under a dangerous goods licence and, as applicable, environmental protection regulations. Hazardous wastes generated through the production or construction process are likely to be transported again, for disposal, treatment or recovery, as dangerous goods, subject to meeting relevant thresholds,[11] accompanied by either the same or a new safety data sheet.

This movement of the hazardous waste from origin to destination is tracked in accordance with environmental protection regulations. Waste generating, storage and receiving facilities are also licensed under these regulations.

This section provides an overview of the three regulatory regimes – how they are governed, what they regulate, how nationally consistent or harmonised they are and how much harmonisation there is between regimes. Further detail regarding regulatory instruments and fees is provided in Appendix C.

Figure 3 Hazardous waste movement cycle



[10] Other regulatory regimes can also apply, for example, health regulations with regard to handling and packaging of clinical wastes.

[11] In addition to potentially falling below dangerous goods thresholds (see Section 3.5.1), not all hazardous wastes are also dangerous goods, for example waste tyres.

3.1 Three regulatory regimes – snapshot contrasts

The three regimes have distinct and complementary purposes. Transport of dangerous goods (TDG) focuses on immediate danger, whilst under WHS regulation, equivalent hazard communication is required for chemicals which can cause long term harm (e.g. organ damage, cancer, etc.) and those which can cause immediate harm (acute poisoning, flammability etc.). The environmental protection regime concentrates on both immediate and longer term impacts on non-occupational human health and the environment.

In WHS regulation, risk assessment is the responsibility of the person conducting a business or undertaking (PCBU), who manages the risk as necessary based upon their specific circumstances.[12]

TDG's focus is more explicitly risk-based, with the bulk of regulation triggered when volumes carried exceed thresholds, with the principal one being a container that exceeds 500 kilograms net mass or 500 litres capacity, the so-called 'placard load'[13] (see also Section 3.5.1).

These and other contrasts are summarised in Table 1.

Table 1 Three regulatory regimes – high-level contrasts

Key	Work health and safety (hazardous chemicals)	Transport of dangerous goods	Hazardous waste
Regulatory purpose	Workplace health and safety – immediate and long term harm.	Public safety in transport – immediate danger.	Environmental management and non-occupational human health – immediate and long term impacts.
Main hazard categorisation	Based on GHS (physicochemical and health effects).	N/A – risk-based, based on volumes.	Ecotoxic (1).
Regulatory basis	Hazardous chemicals used or created in the workplace.	Products.	Substances (primarily).
Key area(s) of concentration	Communication through safety data sheets and labelling and inner packaging (although not stipulated in WHS laws).	Communication through signage and placarding, outer packaging.	Tracking of movements, stockpiling and disposal.

Source: GHD analysis

Note:

(1) 'Ecotoxic' substances or wastes are those which, if released, present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon living systems (NEPM 2012).

3.2 Hazardous chemicals regulation

The objective of hazardous chemicals regulation is to reduce the risk to health and safety in the workplace. The regulatory focus is all aspects of identification, assessment and control of risks in the workplace.

3.2.1 Model work health and safety regulations

Storage and handling of hazardous chemicals is addressed in Australian Model Work Health and Safety Regulations[14], which were developed in 2011 under an Intergovernmental Agreement for

[12] Personal communication, Safe Work Australia

[13] Refer to http://www.0dmp.wa.gov.au/6682.aspx.

Regulatory and Operational Reform in Occupational Health & Safety (OHS). Some jurisdictions (for example, Victoria) also retain requirements for storage and handling of these chemicals under Dangerous Goods regulations which are not part of the Model Work Health and Safety Regulations.

The regulations pick up the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), which is a single, internationally agreed system of chemical classification and hazard communication through labelling and safety data sheets. The GHS replaces classification based on 'hazardous substances' and dangerous goods numbering, as per the ADG Code.[15]

The GHS is developed and maintained by the United Nations Economic and Social Council (ECOSOC) Subcommittee of Experts on the GHS, which reports to the Committee of Experts on TDG and GHS. The GHS is published by the United Nations Economic Commission for Europe[16] and includes harmonised criteria for the classification of physical, health and environmental hazards.

The model WHS laws came into effect in five jurisdictions on 1 January 2012 (and in a sixth, South Australia, in 2013)[17]. An agreed five year transition period for hazardous workplace chemical classification and labelling ends on 31 December 2016. At the present time, all eight states and territories and the Commonwealth provide duty holders with the option of continuing to use their previous OHS chemicals requirements until the transition period finishes. Victoria, Western Australia and the Australian Capital Territory, despite not having formally adopted the WHS laws, have agreed that they too will accept classification and labelling in accordance with the model WHS laws. This avoids cost and inconvenience for multi-state operators who would otherwise have needed to label differently in Victoria and Western Australia than in the other states.

The model WHS regulations do not extend to ecotoxicity. However, this does not preclude suppliers, manufacturers or importers from using the GHS to classify a chemical for ecotoxicity. It also does not prevent them including the information on the safety data sheet.

3.2.2 Safety data sheets

Safety data sheets are created by the manufacturer/importer of the hazardous chemical. Under Regulation 345 of the model WHS regulations, end users are explicitly forbidden from editing them (except to attach a translation into a relevant language). If a process generates wastes which are a 'new' hazardous chemical the business generating the waste should create a safety data sheet for the waste product. In accordance with Regulation 331, safety data sheets for waste products can have limited information where it is not reasonably practicable to create a full sheet.

3.2.3 Role of Safe Work Australia

Safe Work Australia is an Australian Government statutory agency with responsibility for improving work health and safety and workers' compensation arrangements across Australia. The agency is jointly funded by the Commonwealth, State and Territory governments facilitated through an Intergovernmental Agreement signed in July 2008. The agency is not a regulator and does not administer the WHS laws for any Australian jurisdiction.

However, its role includes developing policy dealing with compliance and enforcement of the model WHS laws and to ensure that a nationally consistent approach is taken by work health and safety regulators in each jurisdiction.[18] In this regard, jurisdictions have agreed a national compliance and enforcement policy, to complement harmonised work health and safety laws.

Safe Work Australia is the primary inter-jurisdictional decision making and consultation forum for WHS in Australia. Heads of Work Safety Australia (HWSA) also coordinate WHS nationally.

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[14] Safe Work Australia (2014)

[15] Refer to Safe Work Australia (2012), p.5. Appendix C (p.13ff) provides a translation of chemicals defined as dangerous goods under the ADG Code to the GHS classification.

[16] UNECE (2009)

[17] While the Australian Capital Territory adopted the WHS laws, it did not adopt the hazardous chemicals chapter.

[18] Refer to http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/national-compliance-enforcement-policy, accessed 5 May 2015

3.3 Transport of dangerous goods regulation

Regulation of transport of dangerous goods is aimed, firstly, at preventing accidents and damage to the environment and, secondly, at not impeding the movement of goods, other than those too dangerous to be accepted for transport. Areas of regulatory attention include (outer) packaging of goods, where the dangerous goods content exceeds specified thresholds, placarding of vehicles and licensing of vehicles and drivers.

3.3.1 The ADG Code

The Australian Code for the Transport of Dangerous Goods by Road and Rail (the ADG Code) applies to all land, i.e. road and rail, transport. It also aims to provide smooth interfaces with maritime transport and air transport, by minimising unpacking and re-packing requirements.

There are nine classes of dangerous goods (refer to Table 2), with two classes, explosives and radioactive material governed by separate codes except where transported with other dangerous goods. Class 9 dangerous goods 'Miscellaneous dangerous substances and articles, including environmentally hazardous substances' is a catch-all class for transporting mixed dangerous goods and includes recently added hazardous waste categories (refer to Section 3.3.4).

The United Nations Recommendations on the Transport of Dangerous Goods – Model Regulations provides the basis for Australia's code, as for the codes of other countries. Australia, through the Department of Infrastructure and Regional Development, is a voting member of the United Nations Economic and Social Council Sub-committee of Experts on the Transport of Dangerous Goods. The recommendations are aimed explicitly at ensuring consistency between different national regulatory systems for the transport of dangerous goods.

The United Nations Model Regulations include provisions for training, security, principles of classification, definition of classes, listing of proper shipping names and UN numbers for dangerous goods, general packing requirements, testing procedures, marking, labelling or placarding and transport documents.[19] The model regulations are amended or updated regularly by the sub-committee.

The first version of the model regulations was published in 1956 and since 2001 the sub-committee has provided revisions every two years, with the eighteenth revised edition current and a nineteenth in preparation.

With regard to export and import of hazardous waste, both the United National model recommendations and the ADG Code include goods that are only dangerous when transported by sea or air. However, the equivalent regulatory guidelines are the International Maritime Dangerous Goods Code and the Technical Instructions for the Safe Transport of Dangerous Goods by Air, issued under the Convention on International Civil Aviation (Annex 18).[20]

3.3.2 Role of the National Transport Commission

The National Transport Commission is an inter-governmental agency, based in Melbourne, with a staff that draws from both jurisdictions and industry and with an ongoing responsibility to develop, monitor and maintain nationally consistent regulation relating to road, rail and intermodal transport. The commission maintains and develops the ADG Code in consultation with all jurisdictions. This is via the Transport of Dangerous Goods Maintenance Advisory Group, comprising state and territory dangerous goods regulators and with the Commonwealth in an observer role.

The National Transport Commission seeks the opinion of the Office of Best Practice Regulation regarding the need for a regulatory impact statement for proposed amendments. The general goal of international harmonisation is an important consideration in whether or not this is required in any

[19] United Nations Economic Commission for Europe (2013b)
[20] International Maritime Organisation (2006) and International Civil Aviation Organisation (2015)

particular case. Amendments are approved by the Transport and Infrastructure Council, before being given legal force in jurisdictional legislation.

3.3.3 Competent authorities

The 'competent authorities' for road and rail transport are those agencies appointed in each state and territory to administer the ADG Code. These agencies make up the Competent Authorities Panel. In practice, they largely comprise the same membership as the Dangerous Goods Maintenance Group and with a state/territory chair (currently Victoria), considers submissions requesting national exemptions, determinations (e.g. regarding packaging requirements) and classifications that may operate at variance to the current version of the code, ADG 7.3.

The panel generally meets twice a year (in conjunction with the Dangerous Goods Maintenance Group) and considers submissions from industry and industry associations. Submissions must first be considered by the competent authority in the relevant jurisdiction, to ensure that the matter is of national effect and the submission is complete and in accordance with the regulations. The Department of Infrastructure and Regional Development provides a secretariat for the panel.[21]

The competent authorities for transport of dangerous goods by sea and air are the Australian Maritime Safety Authority and the Civil Aviation Safety Authority respectively.

3.3.4 Recent developments with the ADG Code

In ADG 7.3, released in 2014, there were a number of specific hazardous waste-related additions to Dangerous Goods Class 9, notably asbestos and 'Environmentally Hazardous Substances Not Otherwise Specified (NOS)', with separate dangerous goods codes for both bulk and liquid. The code states that the environmentally hazardous substance classifications may be used for wastes not otherwise subject to the code, but covered under the Basel Convention (refer to Section 3.4.1) and for environmentally hazardous substances that do not meet the criteria for any other hazard class under the code.

In addition, lithium batteries, which with increased commercial uses are also a growing waste stream, were added to ADG 7.3.[22]

A draft amendment package to ADG 7.3 (to become ADG 7.4) was approved by the Transport and Infrastructure Council in May 2015, aligning with the 18th edition of the United Nations Model Regulations. The National Transport Commission comments "The amendment list appears extensive however, in effect many of the changes simply detail changes made by UN17"[23], indicating overall change is minor.

3.4 Hazardous waste environmental regulation

The broad objective of environmental protection regulation of hazardous waste is to minimise adverse impacts on the environment and human health. Ensuring Australia meets obligations under international agreements on waste and hazardous substances is also an important objective at a Commonwealth level.[24]

3.4.1 The National Environment Protection Measure and the Basel Convention

The key national initiative is the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure. Commencing in 1998, this manages the interstate movement of controlled wastes. The measure aims to ensure that controlled wastes which are to be moved between States and Territories are properly identified, transported, and otherwise handled in ways which are consistent with environmentally sound practices for the management of these wastes.

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[21] Department of Infrastructure and Regional Development (2014)
[22] http://www.ntc.gov.au/Media/Reports/(B3155789-31BC-434C-B17E-B0C0A43E6D6B).pdf
[23] National Transport Commission (2015), p.vi
[24] Department of the Environment (2015), p. 52

The NEPM establishes 75 categories of hazardous waste. Jurisdictions report waste tonnages in 15 broader categories, by agreement between jurisdictions.

The NEPM supports Australia's annual international reporting responsibilities, as a signatory to the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.[25] The convention has guiding principles of polluter pays, user pays, proximity[26] and product stewardship. Its principal aims are:

- Reduction of hazardous waste generation and the promotion of environmentally sound management of hazardous wastes, wherever the place of disposal
- Restriction of transboundary movements of hazardous wastes, except where it is perceived to be in accordance with the principles of environmentally sound management – in particular reducing the risk of lower quality treatment and final disposal of hazardous waste in developing countries
- Establishment of a regulatory system applying to cases where transboundary (i.e. international) movements are permissible.

In contrast to transport of dangerous goods, there is no regular or institutionalised updating process to update the listings of wastes to be controlled.

The Department of the Environment manages Australia's international reporting responsibilities under the Basel Convention and administers a hazardous waste import and export regime. See also Section 3.4.3. There is also national legislation to support product stewardship.

3.4.2 National consistency and the NEPM

Consistent with the Basel Convention requirements, tracking of waste movements is a key focus under the NEPM as reflected in the legislation and regulations of all states and territories (inter-jurisdictional movements) and as per arrangements in a majority of jurisdictions (intrastate movements).[27] Receiving jurisdictions approve consignment authorisations of up to 12 months duration for the movement of hazardous wastes from another jurisdiction. These specify wastes, volumes, transport arrangements and receiving facility.

In contrast to the WHS and TDG regimes, there has been no institutional focus on promoting and ensuring uniform hazardous waste movement regulation. While each jurisdiction (other than Victoria) bases its waste classifications on the NEPM, no two sets of regulations and codes are identical.

Separately from the NEPM, jurisdictions also license entities involved in generating, storing, transporting and receiving hazardous wastes, including vehicles and, in the cases of Victoria and Western Australia, drivers. A broad multi-category environmental protection licence, which also covers non-waste related areas, provides the means.

3.4.3 OECD agreement

Treatment of hazardous waste for recovery is a capital-intensive and specialised industry process. With often a limited number of processors nationally if not internationally, it is important that waste generators are able to access them when required. Accordingly, Australia is also a party to a 2001 OECD agreement, which has the principal aim of not restricting transboundary movement of hazardous waste intended for recovery, as long as requirements for consent, tracking and environmentally sound management are met.[28] Whereas the Basel Convention refers to a broad category of 'disposal', the OECD agreement distinguishes between 'recovery' and 'final disposal' (irrespective of the waste treatment process).

[25] United Nations Environment Program (1989)

[26] The proximity principle states that treatment and disposal of hazardous waste take place at the closest possible location to its source in order to minimise the risks involved in its transport (KMH Environmental 2013, p.20).

[27] Tasmania, the Northern Territory and the Australian Capital Territory do not currently track internal waste movements.

[28] OECD (2001).

Table 2 The ADG Code – classes of dangerous goods

Dangerous goods class	Division	Description
Class 1: Explosives*	1.1	Substances and articles which have a mass explosion hazard
	1.2	Substances and articles which have a projection hazard but not a mass explosion hazard
	1.3	Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard
	1.4	Substances and articles which present no significant hazard
	1.5	Very insensitive substances which have a mass explosion hazard
	1.6	Extremely insensitive articles which do not have a mass explosion hazard
Class 2: Gases	2.1	Flammable gases
	2.2	Non-flammable, non-toxic gases
	2.3	Toxic gases
Class 3: Flammable liquids	*n/a*	*n/a*
Class 4: Flammable solids; substances liable to spontaneous combustion; substances which, on contact with water, emit flammable gases	4.1	Flammable solids, self-reactive substances and solid desensitised explosives
	4.2	Substances liable to spontaneous combustion
	4.3	Substances which in contact with water emit flammable gases
Class 5: Oxidising substances and organic peroxides	5.1	Oxidising substances
	5.2	Organic peroxides
Class 6: Toxic and infectious substances	6.1	Toxic substances
	6.2	Infectious substances
Class 7: Radioactive material*	*n/a*	*n/a*
Class 8: Corrosive substances	*n/a*	*n/a*
Class 9: Miscellaneous dangerous substances and articles, including environmentally hazardous substances.	*n/a*	*n/a*

*Class 1 and 7 dangerous goods are not subject to the code, except 'insofar as they are transported with other dangerous goods. The code states that 'reference should be made to the Australian Explosives Code or the Code of Practice for the Safe Transport of Radioactive Substances as appropriate and the legislation covering transport of those classes in the particular jurisdiction.'

Source: National Transport Commission (2015), pp.35-36

As a consequence, there is provision for hazardous waste export from and import to Australia for recovery purposes under Commonwealth legislation and regulations. Existing arrangements offer some advantage to domestic processing of hazardous waste, in preference to export.[29]

3.4.4 NEPM Implementation Working Group

A NEPM Implementation Working Group meets annually, with a state/territory chair (currently South Australia) and the Commonwealth as an observer.

The group does not try to bring jurisdictions into full alignment; rather jurisdictions consult one another and exchange information before introducing jurisdiction-specific changes.

3.4.5 Recent developments

New South Wales has established an on-line interstate and intrastate hazardous waste system that allows approved businesses to operate their interfaces with the system, provided that there is equivalent control over the entire movement. South Australia has also recently moved to an on-line system. Western Australia is similarly moving its licensing system on line.

3.5 Comparing areas of regulatory attention

3.5.1 General contrasts

Thresholds are key features of both the WHS and the TDG regimes. TDG's focus is the more explicitly risk-based, with the bulk of regulation triggered when volumes carried exceed 500 kilograms net mass or 500 litres capacity, the key threshold for the 'placard load'.[30]

National codes of practice, backed by audit and enforcement activity, are key means of regulation in both regimes.

3.5.2 Handling, packaging, labelling and placarding

Both the WHS and the TDG regimes regulate handling, packaging, labelling and placarding (refer to Table 3), the former from the work health and safety perspective and the latter from a transport safety perspective.

3.5.3 Licensing

Under the model WHS regulations, licences are largely being replaced by a 'lighter touch' notification regime, where hazardous chemical levels exceed placard, manifest or threshold quantities. While there are some restricted or prohibited chemicals that require specific authorisation, only high risk ('major hazard') facilities remain routinely licensed.

There are no storage provisions relating specifically to wastes under the model WHS regulations, but general provisions for placarding and storage of hazardous chemicals do apply. More broadly, WHS regulators exclude Class 9 dangerous goods (the catch-all class for mixed dangerous goods including hazardous wastes) from both licence-based and notification-based arrangements, on the basis that these are likely to be a mix of hazardous chemicals. As such there is no coverage of storage of wastes unless other classes of dangerous goods are involved.

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[29] Under the *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (s 17(5)) and OECD Regulations (r 16(4)), the Minister may refuse an export permit if satisfied that: the hazardous waste could be recycled safely and efficiently by using a facility in Australia; such recycling would be consistent with the environmentally sound management of the waste; and having regard to the desirability of using facilities in Australia for the recycling of hazardous waste, the waste should be disposed of by using that facility rather than in accordance with the export proposal.

[30] Refer to http://www.dmp.wa.gov.au/6682.aspx. Placard loads are also deemed to apply where there is any amount of Class 6.2 dangerous goods (infectious substances) and in a limited number of other contexts. See http://www.epa.nsw.gov.au/dangerousgoods/FS2placardloads.htm

Table 3 Comparing areas of regulatory attention

Area	Work health and safety (hazardous chemicals)	Transport of dangerous goods	Environmental protection (hazardous waste)
Handling and packaging	✓	✓	✗
Labelling and placarding	✓ (1)	✓(1)	✗
Licensing – facilities	✓ (2)	✗	✓
Licensing – vehicles	✗	✓	✓
Licensing - drivers	✗	✓	✓(3)
Tracking of movements	✗	✗	✓
Disposal	✗	✗	✓
Recovery	✗	✗	✓
Permits	✗	✗	✓
Monitoring and reporting	✗	✗	✓

Notes:

(1) Hazardous chemicals – inner packaging, dangerous goods outer packaging (note this terminology is not specified in regulations)

(2) Other than for very high risk facilities, licensing is being phased out in favour of a notification system under model WHS law arrangements.

(3) Two jurisdictions only (Victoria and Western Australia) license drivers.

In some contrast, facilities licensing is a major feature of the environmental protection regime.

Vehicle licensing is a key element of the TDG regime, covering all vehicles transporting dangerous goods in excess of the threshold capacity – except in Western Australia, where the requirement is limited to road tank vehicles. Drivers are also licensed (single class) in all jurisdictions.

In the environmental protection regime, vehicles are required to be included in the environmental protection licence. Victoria requires a person who drives a vehicle permitted to transport prescribed industrial waste to have a driver certificate, obtainable from the Victorian Waste Management Association. Western Australia also requires the driver of a vehicle carrying bulk controlled waste to hold an environmental licence.

3.5.4 Tracking of movements

Most environmental regulators track movements of hazardous wastes, through a consignment authorisation process that involves notification of wastes, volumes and vehicles used and approval by the receiving jurisdiction. There is no corresponding requirement in dangerous goods regulation.

3.5.5 Disposal and recovery

Disposal and recovery of hazardous wastes are also regulated under environmental protection regulation, the latter involving eligibility for landfill or other intervention (treatment, immobilisation, etc.) for various categories of hazardous waste, with related and varying levels of industry levy. In addition to NEPM tracking requirements, hazardous waste recovery is regulated under Commonwealth legislation and regulations regarding permit arrangements to export waste for recovery.

3.5.6 Permits

Permits, in the sense of specific time-limited approvals, are a core feature of the environmental protection regime. Examples are: NEPM consignment authorisations, waste transport certificates for intra-jurisdictional movement of hazardous waste and export and import permits under the

Commonwealth *Hazardous Waste (Regulation of Exports and Imports) Act 1989*. Permits are not a significant feature of the other two regimes.

3.5.7 Enforcement

Enforcement is a feature of all three regimes. Contrasts between higher profile WHS and TDG activity and lower profile environmental protection activity were explored during consultation (refer to Section 5.1.6). TDG enforcement activity focuses primarily on 'placard load' operations.

3.5.8 Monitoring and reporting

Monitoring and reporting is a key activity under environmental protection regulation, with data aggregated by jurisdictions and provided to the Commonwealth for Basel Convention reporting purposes. It is not a key element of the WHS and TDG frameworks.

3.6 Inter-jurisdictional consistency and harmonisation

The extent of consistency across jurisdictions within the WHS, TDG and hazardous waste environmental regulatory regimes is summarised in Table 4.

Table 4 Regulatory regimes – how consistent across jurisdictions?

Area	Work health and safety hazardous chemicals	Transport of dangerous goods	Environmental protection (hazardous waste)
Legislation and regulations	◕	●	◔
Mutual recognition (e.g. of licences, labelling)	●	●	◐
Fees	◔	◐	◔

Key: ● Close to fully consistent ◕ Substantially consistent ◐ Partially consistent ◔ Largely inconsistent

3.6.1 Legislation and regulations

Uniform work health and safety laws have been legislated in New South Wales, Queensland, South Australia,[31] Tasmania, Northern Territory and by the Commonwealth, with accompanying regulations. The Australian Capital Territory has also adopted the model WHS laws but has not adopted provisions relating to hazardous chemicals. The Australian Capital Territory, along with the two remaining jurisdictions, Victoria and Western Australia, has indicated that they will accept classification and labelling in accordance with the model WHS laws.

Dangerous goods transport legislation and regulations are very close to uniform across all jurisdictions. Western Australia does not require a licence for non-tank dangerous goods vehicles, an approach that finds support in some other jurisdictions. Jurisdictions' approaches to design approval for used tank vehicles are not harmonised.

While all jurisdictions have adopted the movement of controlled wastes NEPM, each jurisdiction has a different regulatory regime in terms of coverage, classifications and coding. Victoria's regime, based on the 'prescribed industrial waste' concept and including some non-hazardous wastes, is more

[31] While the five year transition period ends on 31 December 2016, South Australia has indicated an unspecified longer phase-out of existing arrangements.

significantly different. Prominent 'non-alignments' include tyres (Victoria) and contaminated soils (Queensland).

Three jurisdictions, Tasmania, the Northern Territory and the Australian Capital Territory do not track hazardous waste movements, while the first two have future interest in doing so. New South Wales and Western Australia do not track ULABs within their borders because it is a waste with a definite commercial value, while other tracking jurisdictions do.

With regard to hazardous waste disposal, Victoria uniquely categorises hazardous waste on the basis of risk. Hazardous waste in Category A, the highest risk category, is prohibited from landfill, while in South Australia, in contrast to other jurisdictions, all hazardous waste is prohibited from landfill, unless it has been treated prior to disposal.

3.6.2 Mutual recognition

Both the hazardous chemicals WHS regime and the TDG regime provide for full mutual recognition, within the respective regime, in relevant areas, i.e. classification and labelling (WHS) and vehicle and driver licensing (TDG). Similar competency-based driver training modules across all jurisdictions reinforce this outcome.

Jurisdiction environmental protection regimes recognise other jurisdictions' licences for movements of hazardous waste between jurisdictions. However, there is a regulatory requirement for businesses to hold a jurisdiction-specific licence for intra-jurisdiction operations.

3.6.3 Fees and charges

Fees and charges are typically the most difficult area to align across jurisdictions.

Within the WHS regime, there exists significant differences between jurisdictions in licence fees for major hazard facilities. In addition, notifications for major hazard facilities and manifest quantities are only chargeable in some of the jurisdictions (refer to Appendix C, Table C1).

Similarly, vehicle and driver licence fees charged under the TDG regime show significant variation across jurisdictions (refer to Appendix C, Table C2).

Under hazardous waste environmental regulation, fees and charges are applicable in both the transport and storage contexts. In hazardous waste transport, fees vary in structure and quantity, with jurisdictions having either fixed or variable charges (refer to Appendix C, Table C3). Hazardous waste storage thresholds and the fees that they trigger also differ markedly across jurisdictions (refer to Appendix C, Table C5).

With regard to waste disposal, five jurisdictions (Australian Capital Territory, New South Wales, Victoria, South Australia and Western Australia) have waste levies (or equivalent) in place to encourage recycling and the remainder do not. New South Wales also has a unique regime of higher metropolitan levies and lower regional ones. There is significant variation in fee level. For example, the levy for Category B waste in Victoria, which can be either landfilled or treated, is $250 per tonne, more than double the next highest levy, the New South Wales metropolitan levy at $121 per tonne (refer to Appendix C, Table C6).

3.7 Harmonisation between regulatory regimes

Each of the three regulatory regimes operates independently of the other two, as is to be expected given their objectives and scope.

With introduction of the Globally Harmonized System of Chemicals Classification and Labelling, classification and hazard communication in the workplace will no longer reference the ADG Code (refer also to Section 3.2.1). Thus harmonisation between these two regimes is reducing, albeit in the interest of improved workplace health and safety.

Seven of the nine classes of dangerous goods are covered by the movement of controlled waste NEPM. Class 2 Gases and Class 7 Radioactive material are the exceptions.

New South Wales plans to integrate the dangerous goods vehicle licence with the environmental protection licence, removing the current double licence requirement.

Organisationally, transport of dangerous goods regulation and work health and safety regulation are currently combined in the same agency in six of the eight states and territories, creating opportunities for a harmonised or combined approach. New South Wales is unique in combining transport of dangerous (bulk or placard load) goods with the environmental protection function.

4. Learning from national transport regulatory reform

National transport regulatory consistency has been an accepted policy goal for at least 25 years. This section:

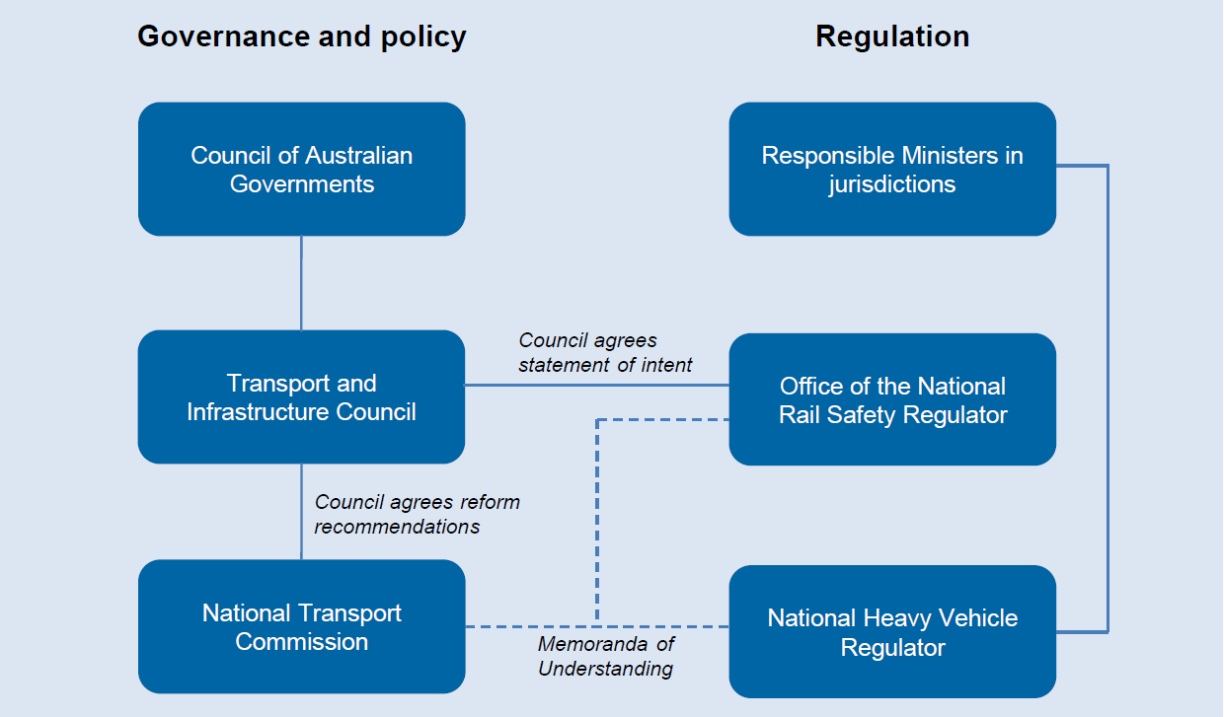
- Sets out key institutional arrangements
- Outlines the evolution of road transport regulatory reform which now includes a national law implementation approach
- Similarly outlines the evolution of transport of dangerous goods regulation, which has remained within an 'advisory' model law framework
- Offers some potential lessons in approaching nationally consistent hazardous waste environmental regulation.

4.1 Institutional arrangements

At a Commonwealth level, strategic policy advice regarding the framework of road, rail, maritime and aviation transport in Australia is provided by the Department of Infrastructure and Regional Development.

The department has portfolio responsibility for the *National Transport Commission Act 2003*, which established the National Transport Commission in 2003.[32] The commission is an inter-governmental agency, based in Melbourne, with a staff that draws from both jurisdictions and industry and with an ongoing responsibility to develop, monitor and maintain nationally consistent regulation relating to road, rail and intermodal transport (refer to Figure 4).

Figure 4 Land transport inter-governmental institutional arrangements



Source: DIRD, NHVR, NTC, ONRSR and Transport and Infrastructure Council websites and GHD analysis

[32] The NTC also assumed the responsibilities of the former National Road Transport Commission, established in 1991.

The National Heavy Vehicle Regulator, based in Brisbane, administers one set of national heavy vehicle laws. The national law commenced in February 2014 and currently applies in the Australian Capital Territory, New South Wales, Queensland, South Australia, Tasmania and Victoria. Specific responsibilities of the regulator include Performance-Based Standards Scheme for vehicle design and access approvals, heavy vehicle access permit applications, heavy vehicle standards modifications and exemption permits and a national driver work diary and risk classification system for advanced fatigue management. Other matters, including heavy vehicle registration, driver licencing and all matters related to the carriage of dangerous goods are still the responsibility of state and territory authorities.[33]

Similarly, the Office of the National Rail Safety Regulator has responsibility for regulatory oversight of rail safety law in all states and territories except Queensland and Western Australia. The goals of the office include to:

- Maintain and improve rail safety through a risk-based approach to regulation
- Reduce regulatory burden on industry
- Prepare for and support the entry of other state regulators.[34]

The Transport and Infrastructure Council brings together the responsible Commonwealth, State, Territory ministers twice annually, providing a decision-making forum on national regulatory reform, including transport of dangerous goods matters. The council is advised and assisted on all non-infrastructure priorities by the Transport and Infrastructure Senior Officials' Committee.

4.2 Road transport reform

In terms of legislative models, road transport reform as a whole has developed from a 'model law' approach to one that lays primary emphasis on 'single national law', with transport of dangerous goods and some other areas remaining in the older model law environment. This evolution reflects both progress made under the model law approach and the approach's limitations in addressing more recent challenges.

4.2.1 Policy context

Road transport reform national policy goals centre on consistency that will lead to improved productivity and better safety outcomes.

Land transport is an area where, given Australia's 'island continent' geography and in contrast to 'borderless' aviation[35] and shipping, there has not been the benefit of a strong accompanying push for harmonisation at the international level. This has increased the importance of a policy goal of national consistency, backed by intergovernmental agreements and appropriate institutional support.

In addition, domestically within Australia, economic, geographic and infrastructure factors have often pushed jurisdictions in different directions: for example, Western Australia and the Northern Territory favouring higher vehicle limits and less stringent driving hour conditions, Queensland and particularly New South Wales, with an eye to road and bridge infrastructure capability in a more densely used network, opting for a more cautious approach. This also has driven the national consistency effort. Some model law achievements are:

[33] Refer to https://www.nhvr.gov.au/about-us/what-we-do

[34] Refer to http://www.onrsr.com.au/about-onrsr

[35] Aviation in Australia has effectively been harmonised since the *Air Navigation Act* of 1920. This covered interstate and (initially) intrastate aviation and gave effect to the Paris Convention of 1919, regulating aviation between nations. The main domestic source of Commonwealth leadership (and domestic harmonisation) was and is the constitutional power to legislate with respect to overseas trade and commerce. See Potterton (2012), pp 2-3.

- From 1991, when the National Road Transport Commission was established, until 2014, when the National Heavy Vehicle Regulator commenced, pursuit of national consistency in regulation of heavy vehicle road use, access and related matters centred exclusively on a 'model law' approach. In each case, the commission – re-named the National Transport Commission in 2003, with an expanded mandate to address national consistency in rail regulation – developed model legislation. This was based on research, consultation and negotiation with jurisdictions, which each jurisdiction, following agreement by the ministerial Australian Transport Council, undertook to adopt
- Nationally uniform heavy vehicle charges were achieved in 1995. In 1998 there was agreement on uniform higher heavy vehicle mass limits, but these did not take full effect in 2005, following an extended period of resistance by New South Wales
- In 2004 'chain of responsibility' legislation was approved by the council. Under the 'responsible person' concept, compliance and enforcement action was extended beyond road transport operators and drivers to freight loaders, customers, packers, exporters and receivers. Thus for example:
  - Heavy vehicle drivers must drive safely and within speed and work/rest hour limits
  - Loaders must load a vehicle safely and within mass and load restraint requirements to ensure the load is safe for transport
  - Consignors must ensure the delivery of goods does not require the driver to exceed the permitted number of driving hours, fail to have minimum rest periods or exceed the speed limits[36].

4.2.2 Towards a national law approach

'Performance based' standards, in which higher vehicle mass and dimension limits are approved for particular routes on the basis of vehicle design and performance and agreed to by the Australian Transport Council in 2006, have proved particularly challenging to implement, due to a range of factors. These include:

- The number of jurisdictions involved, given Australia's more than 550 local governments
- Complex assessment requirements involving case by case aligning of vehicle or vehicle combination profiles with the capability of the relevant road infrastructure
- Insufficient technical assessment capacity, particularly among some local governments
- Variable road infrastructure condition, notably bridge deficiencies.

Slow progress with performance based standards was an important driver in the decision of the Council of Australian Governments in 2009 to establish (by 2013) a National Heavy Vehicle Regulator.

In this instance, rather than adopting model law that could be individually tailored, with inconsistencies potentially resulting, jurisdictions agreed in August 2011, with the exception of Western Australia, to enact a codified set of Heavy Vehicle National Law covering areas including registration, driver fatigue, speeding compliance, mass and loading, vehicle standards and other areas. The Queensland Parliament passed the national law first (in February 2013).

4.2.3 Early experience with the National Heavy Vehicle Regulator

The Queensland legislation has since been mirrored in five other jurisdictions, New South Wales, Victoria, South Australia, Tasmania and the Australian Capital Territory, with Western Australia and the Northern Territory thus far declining to enter the system.

[36] Refer to http://www.rms.nsw.gov.au/business-industry/heavy-vehicles/safety-compliance/chain-of-responsibility/index.html

For Western Australia, with its long road distances and low traffic environment, national driver fatigue law has been the main stumbling block to agreement, as also for the Northern Territory.[37] Western Australia also benefits from a form of mass-distance charging, which is customised better to the individual load, vehicle and infrastructure context than existing national charging. The Heavy Vehicle National Law is nevertheless seen as an implicit force for change, with Western Australia and the Northern Territory taking account of the law in their own regulations, ensuring that they do not move too far out of line.[38] The National Heavy Vehicle Regulator (NHVR) sees industry interest in consistency as a force for change in the longer term. [39]

Some administrative difficulties have also accompanied commencement of a national heavy vehicle regulatory regime. Upon opening in February 2014, the NHVR's information system proved unable to cope with the volume of heavy vehicle road access permit applications, with individual jurisdictions resuming control of approvals for a period.[40] While the expectation was that 40 permit types would cover the full range of applications to local government for heavy vehicle road type, it turned out that, allowing for local road manager conditions, some 1,000 permit types were actually required.[41] The problems experienced have, however, forced the pace of change, with new streamlined global road access approval processes covering multiple jurisdictions now in place.[42]

This recent experience illustrates the entirely new administrative challenges that national, as distinct from harmonised, regulation brings. Business processes that operate on the basis of informally communicated knowledge and understanding in the existing environment must now be formally agreed, re-designed and mapped in preparation for the nationally uniform regulatory environment. This will apply similarly in the enforcement context.

In the view of the chief executive of the National Transport Commission, the NHVR may require a period of three to five years to fully develop its processes and capabilities.[43]

4.3 Regulatory reform benefit estimates

Prior to government decision, a regulatory impact statement was prepared for both the Heavy Vehicle National Law and the Rail Safety National Law, with the purpose of exploring the impact of the Law and summarising government, industry, and interested parties' responses.

The statement prepared for the Heavy Vehicle National Law in September 2011 found that implementation would provide between $5.6 and $12.4 billion in net present value benefits (2011 dollars). Productivity benefits for industry, arising from consistent and improved access for larger, more productive heavy vehicles to the road network, followed by industry compliance savings were the two largest categories of benefit.[44]

Similarly, a regulatory impact statement prepared for the Rail Safety National Law in November 2013 estimated a net present value benefit to society of between $28 and $71 million (2013 dollars). Savings comprised administrative savings for industry and some safety improvement in an already very safe industry.[45]

In 2016 the Productivity Commission is to review for the Council of Australian Governments the overall economic impact of: the new national framework for regulation, registration and licensing of heavy

[37] Australian Transport News (2015b)
[38] Personal communication, Department of Infrastructure and Regional Development
[39] Australian Transport News (2015b)
[40] Australian Transport News (2014)
[41] Personal communication, National Heavy Vehicle Regulator
[42] Australian Transport News (2015c)
[43] Australian Transport News (2015a)
[44] National Transport Commission (2011a)
[45] National Transport Commission (2011b)

vehicles; the single national rail safety regulatory framework and the rail safety investigation framework; and the national approach to maritime safety regulation.[46]

4.4 Transport of dangerous goods regulation

In contrast to general road transport reform, transport of dangerous goods regulation has remained within the model law approach. It has also benefitted significantly from the broader reform currents outlined in Section 4.2.

Early development of the ADG Code took place through the Advisory Committee on the Transport of Dangerous Goods, an official sub-committee of the Australian Transport Advisory Council, the predecessor of today's Australian Transport Council. The advisory committee was established in 1970.

Improved consistency and uniformity in dangerous goods transport was an early project of the National Road Transport Commission in the 1990s. This led to a national Act, the *Road Transport Reform (Dangerous Goods) Act 1995*, national regulations in 1997 and a new (sixth) edition of the code.

Changes resulting from this renewed focus included:

- Provision for appointment of a Competent Authority in each jurisdiction to administer and enforce the legislation
- Adoption of the then new 'chain of responsibility' regulatory approach (refer to Section 4.2.1), with all responsibilities moved from the code to the regulations so that the code became a purely technical document
- Clearer and more logical presentation of the regulations.

The legislative architecture has altered slightly since the 1990s, but without moving from the model law approach. An intergovernmental agreement in 2003[47] provided the basis for repealing the 1995 Act and the 1997 regulations and replacing them with the *National Transport Commission (Model Legislation - Transport of Dangerous Goods by Road or Rail) Regulations 2007*. These comprised Schedule 1, the *Model Act on the Transport of Dangerous Goods by Road or Rail 2007* and Schedule 2, the *Model Subordinate Law on the Transport of Dangerous Goods by Road or Rail 2007*.

In addition, the respective roles of the National Transport Commission, in managing development of updates of the ADG Code and the Transport and Infrastructure Council, which makes ultimate decisions and provides a mandate for the work of both the commission and the Department of Infrastructure and Regional Development, have continued to remain central.

As outlined in Section 5.1.6, there is less consistency in enforcement of the ADG Code than in the regulations themselves. This is the potential province of a national regulator, if and when this step is taken.

4.5 Implications

Some general implications for regulatory policy from the land transport regulatory reform experience, including TDG, are as follows:

- An international harmonisation impetus is positive for national regulatory consistency, but an institutionalised national advisory or developmental effort, backed by some degree of implementation coordination, is beneficial even in circumstances where, as with TDG, the international harmonisation impetus is already strong
- The weaker the international harmonisation impetus and the stronger the domestic pressures working against consistency, the greater is the importance of a national advisory and developmental effort, as seen with general road and rail reform

[46] Personal communication, National Heavy Vehicle Regulator

[47] http://www.ntc.gov.au/Media/Reports/%280AAD626F-5961-0DFA-6508-258B5697EBBD%29.pdf

- These circumstances also provide a rationale for a nationally-based implementation approach, as is now being pursued with the National Heavy Vehicle Regulator
- National reforms are worth pursuing even if some jurisdictions, for their own reasons, remain outside the framework. The national approach may still have an influence in minimising differences with the regimes of non-participating jurisdictions
- The existence of a national regulator extends the focus from achieving legislative or regulatory consistency to consistency in implementation and enforcement, with distinct administrative challenges.

With regard to the implications for hazardous waste environmental regulation, the international harmonisation impetus under the Basel Convention is relatively weak, given its primary emphasis on local treatment and disposal and restriction of international movements where feasible (see Section 3.4.1). This provides an apparently strong contextual rationale for some institutionalised advisory and developmental effort to pursue national regulatory consistency.

At the same time, the domestic impetus for differential regulation is possibly less strong than in the road transport sphere (and there is also no requirement to engage local government). This suggests that a national regulatory administration entity may not necessarily be needed.

5. Issues from consultation

This section presents issues raised in consultation, together with suggested solutions where provided.

Issues at the interface between transport of dangerous goods, work health and safety (hazardous chemicals) regulation and hazardous waste environmental regulation are outlined first, including those involving simple comparison of the different regimes.

5.1 Issues across regulatory systems

5.1.1 Approach to risk

The Australian Trucking Association commented that the hazardous waste environmental regulations are often more onerous than the dangerous goods regulations, for a lower level of risk (and sometimes a much lower level of risk). The association is aware of businesses that no longer transport hazardous waste, partly for that reason. It noted that similar levels of risk should involve similar levels of regulation.

To illustrate, one transport business, which had operated across three jurisdictions, noted that the need to comply with equipment-specific and driver-specific environmental licensing, in combination with waste tracking arrangements, had resulted in a level of costs which it had not been able to recover from customers. This was because back-up vehicles and drivers always needed to be available (e.g. in case one nominated person is sick). Regulatory requirements to nominate drivers and vehicles were not consistent with the generally low level of risk associated with hazardous waste and the situation that public safety risk is commonly greater in transporting dangerous goods.

A further business, which currently transports both hazardous wastes and dangerous goods, noted that, with environmental licensing costs in Queensland of around $1,700 per year (in addition to normal transport road user and other charging), it was necessary to transport a sufficient volume of hazardous waste business to be able to cover these fixed costs.

Tasmania commented that current environmental protection regulations are not risk-based and questioned the need for a government waste tracking system, particularly in circumstances where systems used by industry are capable of waste tracking.

5.1.2 Dangerous goods labelling of hazardous wastes

One company noted the improvement in ADG 7.3 in acknowledging hazardous waste through the 'environmentally hazardous substances, not otherwise specified' coding, as part of Class 9 Dangerous Goods, where previously it did not. However, there was industry agreement that greater allowance for product mixtures was needed in hazardous substances and dangerous goods labelling. As 'non-virgin' products, wastes are inherently mixtures and this is not sufficiently recognised. For example, in transporting methanol waste from cleaning, the safety data sheet for methanol is used, but is not accurate.

There was similar comment from environmental regulators as to whether there are adequate placarding options for fertiliser and diesel wastes. This was in contrast to clinical wastes which are always clearly placarded.

A dangerous goods regulator explained that Basel Convention hazardous wastes are automatically assigned as Class 9 dangerous goods. This is seen as the 'safe option', unless the waste is known to be a flammable liquid, say, in which case it is assigned to Class 3. From a regulator perspective, businesses will often apply for dangerous goods licences for classes 3 (flammable liquids), 6 (poisonous), 8 (corrosive) and 9 (mixed class). This ensures compliance but does not necessarily solve the problem of how to accurately placard the vehicle. Asbestos and clinical wastes aside, the transporter may not know whether what they are carrying is environmentally hazardous or not.

Another company commented that it was important to indicate what is expected of both bulk liquid trucks and packaged waste vehicles, with NEPM codes connected to dangerous goods classes (and to GHS symbols in the case of packaged or 'less than placard load' waste vehicles). While waste codes are satisfactory for Class 3 (flammable liquids) and Class 5 (oxidising substances and organic peroxides) dangerous goods, required dangerous goods placarding was not clear or accessible.

From a different perspective, there were also suggestions that mislabelling results from misunderstanding of the available choices and too ready an acceptance of the 'virgin product' information contained in the safety data sheet. One company considered that the waste generator should produce a new safety data sheet, as is required under WHS regulations where a new hazardous chemical is involved, rather than rely on the one for the product, commenting "*They don't see themselves as manufacturers and they are*". The same company added that testing by a chemist might be needed to generate the necessary information. As new safety data sheets are already required where a 'new chemical' is produced (see Section 2.2.2), the issue would appear to be one of achieving the right combination of enforcement and assistance.

Safe Work Australia noted that businesses disposing of waste have obligations to protect their workers and should seek the necessary information, while commenting that, under the model WHS regulations, the business entity must determine what is reasonably practicable in managing the risks of hazardous chemicals.

5.1.3 Paperless trucks

New South Wales would like to see heavy vehicles no longer required to carry paper consignment notes, replacing them with mobile electronic devices.

This would provide a more robust system in the event of accidents, as emergency services could have access to the on-line system. However, it noted that this will require the involvement of multiple parties and therefore is a longer term goal, compared with an on-line hazardous waste tracking system (refer to Section 5.2.2).

5.1.4 Transport licences

New South Wales noted the opportunity to harmonise environmental and dangerous goods transport licences. Refer also to Section 5.1.1.

5.1.5 Regulator responsiveness

Industry places value on timely approvals. With regard to movement of hazardous waste, one business indicated that obtaining approvals can be challenging where movement across multiple jurisdictions is involved, requiring around two months in one instance. In normal trans-continental movements, a consignment authorisation can take two weeks to come back approved, with availability of the 'right person' often the key driver.

In general, the dangerous goods transport and work health and safety regimes, which are largely co-located in the one organisation, are seen as responsive and adopting a more pre-emptive, 'here to help you' approach. There was comment about a 'people-focused' approach, compared with a 'protecting the environment' one in the hazardous waste sphere. In addition, environmental protection agencies can sometimes appear unsure what the actual regulatory requirements are, or may suggest that a business should obtain its own legal advice with regard to the requirements. There can be long delays in receiving advice about what the requirements are. New South Wales was seen as something of an exception in this regard.

5.1.6 More consistent enforcement

Industry would like to see greater consistency in hazardous waste enforcement and considers that smaller operators can receive less attention. A more proactive approach is valued *("we never see a regulator except where we've done something wrong"*).

New South Wales transport of dangerous goods enforcement activity was regarded favourably, involving high visibility campaigns, but a more consistent national approach in dangerous goods enforcement is also needed to be fully effective. Western Australia noted that it has a two tier audit regime, involving road tanker operators and portable tank transporters (higher risk) and others, i.e. packaged and intermediate bulk container transport operators (lower risk). It noted that a good 'goal post' would be to visit a company every five to six years and would like to increase its activity.

The Western Australian Department of Environment Regulation noted its targeted risk based compliance program. High risk facilities are inspected annually, medium risk every two to three years and low risk ones every five years. It noted that illegal activity typically occurs with low risk wastes which have a diverse range of facilities for disposal, such as used tyres.

5.1.7 Communication with industry

Industry respondents expressed some frustration with the level of information about forthcoming regulatory changes, with regard to both GHS and the ADG Code and consequential difficulties in advance planning of training and other areas.

The current five-year transition to the GHS is a significant preoccupation for industry. One company stated that it had understood that the ADG Code would be replaced by the GHS – which, having attended a recent conference, it now appreciated was incorrect.[48] Another company considered that the fact that the WHS regulations make no mention of the ADG Code had contributed to this view.

In the TDG area, release of ADG 8 had been anticipated in 2014, but ADG 7.3 had been released instead. There had been 'inconsistent messages about what's coming up next'.

These observations suggest scope both for better coordination between WHS and TDG regulators in the area of industry communication and for considering how to improve ongoing communication.

5.1.8 Easing regulation of transport of used batteries for recovery

The Australian Battery Recycling Initiative (ABRI) noted that, following assistance from New South Wales and Western Australia, the Competent Authorities Panel had granted an exemption in 2012 from individual packaging of lithium ion batteries, where these comprise a small proportion of a load of used batteries. However, the exemption still required compliance with other aspects of the code, e.g. placarding, whereas in Europe this was not required, where batteries are being collected for recycling and they are labelled as lithium, refer to Case study 1.

ABRI also noted that it was proving difficult to remove alkaline batteries from listing as a hazardous waste, despite the fact that there was no UN number for these batteries, mercury (a constituent of alkaline batteries) having been phased out in the 1990s. While looking to the next version of the ADG Code for some change, ABRI commented issues are not yet fully resolved at the international level.

[48] The ADG Code is being replaced as a basis for hazard classification and communication in the workplace (refer to Section 3.2.1 and Safe Work Australia 2012), but not as the basis for corresponding communication in transport.

Case study 1 Keeping up to date on lithium ion battery transport

Lithium ion batteries are the most common battery type utilised in portable electronic devices, representing approximately 24 per cent of Australian battery sales (by weight) in 2012-13. Furthermore, expansion of the electric vehicle market will contribute to the quantity of waste lithium ion batteries. The projected growth in the lithium ion battery waste stream identifies it as a key emerging waste trend.

In 2012, the Australian Battery Recycling Initiative (ABRI) successfully applied for an exemption from certain packaging requirements for waste batteries under the ADG Code. This aligned Australian battery provisions with the (United Nations Economic Commission for Europe) European Agreement concerning the International Carriage of Dangerous Goods by Road, commonly referred to as ADR 2011. The exemption was endorsed by the Competent Authorities Panel such that it has effect in all Australian jurisdictions.

The exemption is applicable to transport of waste lithium ion batteries (Dangerous Goods Number UN 3480), lithium metal batteries (UN 3090) and non-lithium batteries (UN 3028) from the first collection point to the intermediate processing centre for the purposes of disposal or recycling. The exemption conditions state that portable batteries do not need to be individually protected against short circuit (e.g. by taping over the terminals of each battery) as long as all of the exemptions requirements are met. These requirements include packing according to special provision SP636 and packing instruction P903, and venting single and outer packaging's used for waste batteries. Additionally, a copy of the exemption must be carried by the driver and a maximum gross mass of 400 kg per package is permitted.

The exemption does not apply to used batteries sorted by chemistry, for example a load of lithium ion batteries, and as such the transport of these loads requires full compliance with the ADG Code. In addition the exemption does not apply to physically damaged batteries.

The current UN Recommendations on the Transport of Dangerous Goods Model Regulations (18th revised edition, 2013), contain certain special provisions and packing instructions relevant to lithium ion batteries that are not included in the current ADG Code. These relate to the identification of damaged or defective batteries and requirements for batteries destined for disposal or recycling.

Under the UN Model Regulations a special provision (SP376) exists for lithium ion batteries/cells regarded as damaged or defective. Packages are marked as "Damaged/Defective Lithium-ion Batteries" and are packed according to a specific packing instruction for small batteries (P908) or for a single (large) lithium ion battery (LP904). The UN Model Regulations also contain a special provision (SP377) and accompanying packing instruction (P909) for lithium ion batteries/cells transported for disposal or recycling. Packages are marked as "Lithium Batteries for Disposal/Recycling" and the provision specifies that these batteries are not subject to certain requirements surrounding battery testing, short circuit and reverse current flow prevention, and safety venting devices.

Adoption of these components into the ADG Code will provide more support and structure for battery recycling and will capture emerging trends in the lithium ion market for larger batteries such as energy storage and electric vehicle batteries (with large packaging instructions).

5.1.9 National leadership

While not a direct focus of questioning, industry was unanimous that government – i.e. national and/or Commonwealth – leadership was essential for good regulatory outcomes. Leadership was viewed largely positively in the transport of dangerous goods area, as largely lacking in the environmental protection area and as mixed in the work, health and safety sphere.

One environmental regulator commented that the strength of the NEPM Working Group was not getting in the way of what States want to do. However, it was less advanced than the Competent Authorities Panel.

With regard to this panel, New South Wales commented that it had been unable to achieve national action on a coronial recommendation in 2011 that called for implementation of electronic stability control in tanker vehicles. As a result, it had acted unilaterally. New South Wales had found the institutional dangerous goods response slow and inadequate. The Department of Infrastructure and Regional Development commented that, in wider transport policy development processes, jurisdictions had been reluctant to agree to one regime for tanker vehicles and another for all other heavy vehicles.

Victoria commented that the Commonwealth could act to put a national hazardous waste movement system in place. Victoria noted New South Wales leadership, with its on-line system able to generate good information on hazardous waste leaving the jurisdiction, but considered that Commonwealth Government oversight of a national system would be required.

5.2 Issues specific to hazardous waste environmental regulation

5.2.1 Single consistent hazardous waste tracking regime

Industry respondents considered that the existence of multiple jurisdiction-specific waste tracking regimes, each with its own waste classifications,[49] codes and administrative requirements, complicated their operations and added to the cost of doing business. National businesses must liaise with the 'NEPM expert' in each jurisdiction and company information systems need to pick up each jurisdiction's set of NEPM codes. For example, paint wastes coded to F100 in New South Wales might be F110, F120 or F130 in Victoria.

Government regulators were highly aware of the limitations of existing arrangements for industry. In addition, they noted the difficulty in constructing a hazardous waste 'mass balance' at jurisdiction level. While each jurisdiction has full information on hazardous waste transported into the jurisdiction, it can be prohibitively difficult to gain comparable information on hazardous waste leaving the jurisdiction – because of the number of jurisdictions, as well as possible hazardous versus non-hazardous classification differences in the other jurisdiction. One consequence is the additional difficulty in monitoring hazardous waste stockpiles (refer to Section 5.2.6).

Industry considers that the appropriate solution is to classify hazardous wastes uniformly and consistently, based on harm to the environment and the controls needed. A single system is required, integrating intra-jurisdictional and international (import/export), as well as inter-jurisdictional tracking. Given existing jurisdiction differences, regulators consider that national leadership would be needed to address the issue.

5.2.2 Changing from paper to on-line systems

State government regulators see a current move to on-line systems as something of a 'game-changer' with regard to consistency, improved data and user-friendliness. New South Wales has established an on-line system and allows approved businesses to operate their own interfaces with the system,

[49] Other than the Northern Territory, which is yet to put in place a classification system.

provided that there is equivalent control over the entire movement. One business commented that this works well and all jurisdictions should follow suit.

In the course of project consultations, New South Wales offered for all jurisdictions to log into its system. South Australia has also recently moved to an on-line system and is examining all-jurisdiction access. However, Western Australia noted that it lacked the budget to set up an interface with many different industry systems: industry would need to pay for this.

5.2.3 Expanding NEPM code coverage to used batteries

ABRI commented with regard to used lead acid batteries, with regulator agreement, that, as a multi-waste product – i.e. including lead, lead compounds and acid – it was difficult to determine what waste code should be applied. This added to the normal difficulties of coding differences between jurisdictions.

ABRI noted that Western Australia has introduced codes for three battery types (used nickel cadmium, used nickel metal hydride and used lead acid). It recommends that these are duplicated in the NEPM and other jurisdiction arrangements, together with codes for other batteries (alkaline mixed dry cell and lithium/lithium-ion), refer to Section 5.1.2.

5.2.4 Adopting other frameworks in place of the NEPM

One company suggested that the GHS framework could be used in place of the NEPM arrangements.

While this proposal could have the advantage of national consistency, environmental regulators noted that many NEPM codes seek to address the 'mixture' dimension of wastes – albeit at a high level, for example 'waste from the printing industry' – whereas GHS codes relate to individual substances or chemicals. NEPM codes also aim to align with the capabilities of waste treatment facilities and respond to the Basel Convention categories.

Queensland indicated that it had looked at aligning its waste codes with the ADG Code but deemed this impractical, noting that with 3,000 individual dangerous goods codes, this would require a similar number of waste codes.

5.2.5 Facilitating waste recovery

ABRI commented that the regulatory regime should be designed to encourage rather than discourage recycling and should be simple, transparent (easily understood) and consistent across all jurisdictions. It commended the United States Hazardous Waste Regulations under the *Resource Conservation and Recovery Act* as a model. These provide a streamlined approach to regulation of certain types of waste including used lead acid batteries, pesticides and mercury-containing equipment.

While several jurisdictions have progressed some way down this path, by not requiring tracking of used lead acid batteries moved within jurisdictional boundaries, Queensland considered that easing regulation would risk dumping behaviour by small, informal operators. A waste such as tyres could be said to have a value, but many still ended up being dumped. Others acknowledged the difficulty in ensuring compliance by all operators. However, they considered that existing tracking and licensing arrangements are both complex to administer and, in the absence of pro-active enforcement activity, not necessarily capable of achieving compliance from certain operators.

Western Australia also noted that markets are variable and if prices fall and an operator goes into liquidation, what happens to the stockpile and what information would be known about the waste? (refer to Section 5.2.9).

With regard to the Department's international reporting obligations, which existing arrangements also support, ABRI suggested that rather than tracking individual movements, information on quantities could be obtained from the small number of battery processors. One battery processing company agreed that its data was very accurate and that this should be a sensible approach, subject to commercial confidentiality guarantees.

5.2.6 Storage and stockpiling

Tomago Aluminium noted that, where landfilling is not permitted, it is necessary to stockpile until the waste quantity is sufficient to justify the cost of immobilisation or treatment. In addition, aluminium spent pot liner waste has been stored in warehouses for many years, with economically viable reuse options only recently becoming available.

New South Wales noted that stockpiles can occur at the point of generation, or transfer, or receipt, With the cost of disposing of very hazardous waste, there is an incentive to stockpile and especially if a business faces cash flow difficulties. This is a challenging area, with two or three instances a year in the state, where stockpiles are found and require removal. The problem would be alleviated with a national tracking system that permitted a mass balance, making stockpiles easier to identify.

Tasmania commented that lack of information about quantities stored limited the ability to explore business cases for waste reprocessing.

Differences in storage (and other) regulation can pose challenges for businesses in ensuring that they are compliant in all jurisdictions. In New South Wales, a licence is required to aggregate used lead acid batteries at greater than 60 tonnes, while in Queensland the licence threshold is 45 tonnes (previously five tonnes). Charging approaches differ also, with $5,000 the cost of a licence in Queensland and no charge in other jurisdictions, refer to Case study 2.

Victoria commented that licence conditions indicate the amount a licensee is allowed to hold, with some flexibility for operators who are doing recovery and treatment. Controls do not apply to non-prescribed industrial waste, including waste tyres currently.

5.2.7 Consistency in waste disposal

One business commented that greater consistency with regard to landfilling regulation would encourage investment in waste treatment facilities and improve environmental outcomes. Victoria noted that costs of disposal are significantly different, with a $100 per tonne (and higher) difference between some jurisdictions.

While Western Australia does not distinguish between waste going to landfill or to treatment, it estimates that approximately 50 per cent goes to landfill and 50 per cent undergoes treatment.

5.2.8 Integrating external territories into the NEPM

Tasmania noted that it regularly received quarantine waste from the Australian Antarctic Territory. As an external territory, the Australian Antarctic Territory is outside the NEPM.

Despite the fact that it is the receiving jurisdiction, Tasmania is required to classify the waste according to Commonwealth requirements, i.e. as Category A. Tasmania noted that, in other jurisdictions, the waste is handled by ports and customs authorities outside the hazardous waste framework.

5.2.9 Better data

Availability of accurate data is accepted as important, but the existing hazardous waste tracking regime is not seen as generating this. Environmental regulators noted that the system was designed to track movements and to aid enforcement, not to measure volumes and so was prone to double-counting.

One business considered that data currently ‘must be corrupt’ in light of the non-alignment of jurisdiction definitions and the difficulty of checking data.

Queensland indicated disquiet with a situation where the Commonwealth’s reported numbers were different from those reported by jurisdictions. However, alignment of jurisdictions’ definitions would require the Commonwealth to mandate change.

Case study 2 Complying with differing used battery storage arrangements

As a hazardous waste, the storage of used lead acid batteries is regulated in each jurisdiction through an environment protection licence (or equivalent), required once a waste quantity threshold is exceeded. Regulations vary by jurisdiction and this has been noted to impede business understanding of requirements and obligations (ABRI 2012a).

There are jurisdictional differences in the areas of waste battery classification, storage thresholds and associated licence fees. In some jurisdictions, specific used lead acid battery licence classifications exist, whilst in others used lead acid batteries are included under broader classifications.

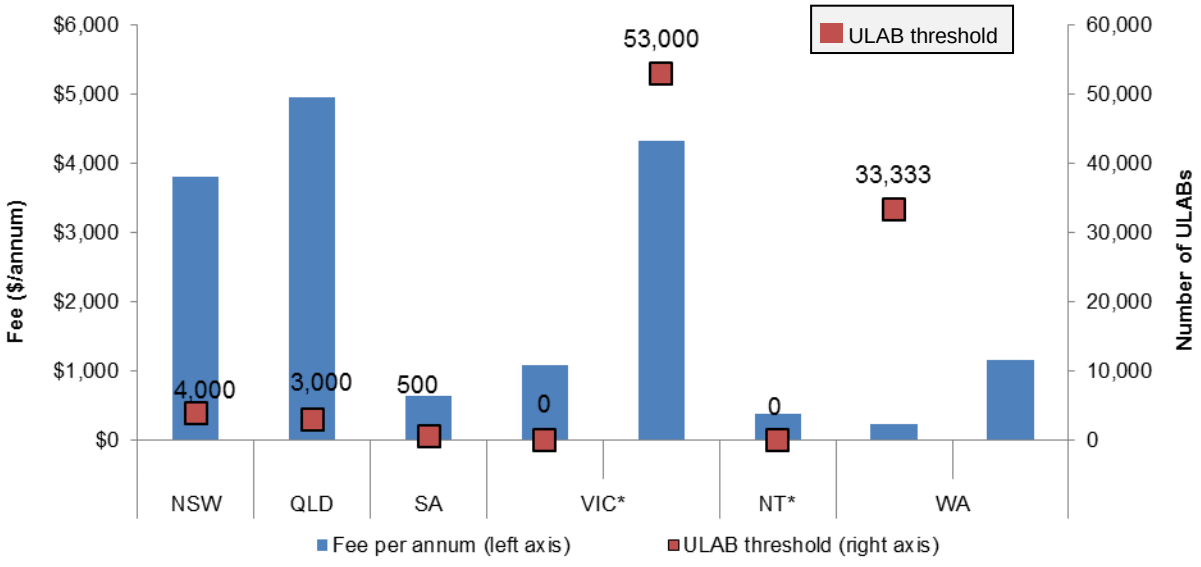
Storage thresholds for used lead acid batteries are generally defined on a 'per tonne' or 'per battery' basis. Tonnage based thresholds can either be linked to the quantity stored at a point in time (tonnes), or an amount stored annually (tonnes per annum). A unit weight of 15 kilograms per used lead acid battery is indicated from the Queensland threshold and is used in calculating thresholds for other jurisdictions in Figure 5.

A summary of used lead acid battery storage thresholds and licence fees is presented in Appendix C. Jurisdictions with broad, non-waste battery-specific, waste storage licences appear to have larger variances in storage thresholds. Relative to the storage threshold, licence fees are greatest in Queensland ($4,967) and in New South Wales ($3,808). Low licence fees are associated with low thresholds in South Australia, Victoria (up to 53,000 ULABs) and the Northern Territory. Storage thresholds in Western Australia are significantly greater than other jurisdictions, but licence fees are low.

Generally, higher thresholds promote the collection and recycling of batteries, but this is dependent upon the fee payable when the threshold is exceeded. For example, storage of a quantity above 3,000 to 4,000 waste batteries is at least three times more expensive in New South Wales and Queensland than in other jurisdictions (up to 53,000 used lead acid batteries in Victoria).

In October 2013, changes were made to Queensland regulations, increasing the used lead acid battery storage threshold to 3,000 (up to 45 tonnes) from '500 batteries for no more than 28 days'. This increase was driven by a need to allow regional areas to collect and store a greater quantity, improving the viability of collection and recycling (Queensland Cabinet and Ministerial Directory 2012).

Figure 5 Used lead acid battery storage thresholds and fees



*Additional per tonne charges also apply

Source: Various and GHD analysis

The Northern Territory noted that lack of data, in view of absence of a tracking regime, was a jurisdictional issue, with other jurisdictions far more advanced. Moving in the future to an on-line system could address this.

Western Australia noted that data collected has not been used to the full extent. There is potential to use it for ensuring compliance, for policy analysis contexts and to assist in waste queries.

5.2.10 Opportunities resulting from harmonisation

One business commented that if hazardous waste environmental regulations were harmonised, savings could be redirected to enforcement. More oversight was needed of unlicensed operators.

Significant differences in landfilling regulation were noted, with Victoria, where very little can be landfilled at one end of the spectrum and Queensland, with few restrictions on landfilling at the other. Queensland is currently reviewing its hazardous waste categorisation approach.

One business commented that greater consistency with regard to landfilling regulation would encourage investment in waste treatment facilities and that consistent NEPM coding would ease transport to such facilities. While there was currently over-capacity in used lead acid battery processing, e-waste treatment is coming on-line now and a national product stewardship scheme, if it eventuates, for paint will similarly enable investment in waste treatment technology.

A goal of phasing out landfilling of petrochemical and hydrocarbon wastes by a specified date could be very beneficial, in the view of one business. However, landfilling could still be an appropriate option in some circumstances, depending on the associated environmental harm.

In addition to encouraging harmonisation, there was also some support for prior investigation of what regulations can be eliminated to the benefit of the environment, for example to better promote resource recovery and avoiding the investment in harmonisation.

5.3 Understanding industry trends

The National Transport Commission noted the growth of e-commerce. 'Transport of limited quantities', (for example containers of less than one litre) growth of which is linked to expanding e-commerce, among other factors, is being examined. This is to ensure that heavy-handed regulation does not become a drain on the economy.

With a fall in the size of the manufacturing sector across the country over recent years, total volumes of hazardous waste to be moved and disposed are not expected to increase. One company commented that waste generating businesses may themselves invest more in waste treatment to reduce costs, resulting in environmental service companies needing to specialise further in the more concentrated wastes, refer to Case study 3.

Victoria noted that, with smaller amounts of wastes, there is a risk that in the future there will be quantities of acids and alkalis that no one can afford to treat because the quantities are below economic scale.

The growing use of lithium ion batteries has already resulted in adjustment of ADG Code requirements.50 Further change is likely, as lithium-ion batteries increase both in size and number, particularly with the large volumes likely with the emergence of electric vehicles and household storage. ABRI noted that the Clean Energy Council, a peak industry association, is examining regulatory gaps, which include addressing fire safety hazard risk. Defective batteries are a particularly sensitive area. These were prohibited from travel by air until recently, but packaging instructions now permit this.

[50] A consignor applied to send 600 tonnes of lithium ion batteries from Western Australia to New South Wales. Packaging instructions did not distinguish between new and discharged batteries. On the basis of new packaging instructions in Europe where 'dilution' with other used batteries was permitted (since adopted in the UN DGC), regulators in the two states conferred and the movement took place on this basis.

Case study 3 Incentivising hazardous waste treatment and resource recovery

Thermal treatment using technologies such as High Temperature Incineration (HTI) and Thermal Desorption (TD) provide a sustainable solution for the management of hazardous wastes including liquids, sludge, and solid wastes, which may otherwise be non-recyclable. Until operation ceased in June 2013, Toxfree operated the sole industrial incinerator in Australia – located in Port Hedland.

Primary waste streams treated at the facility were produced from the oil, gas and mining industries. The incinerator was decommissioned in the 2013 financial year, as it had reached the serviceable end of its life and the technology was deemed unsuitable for the long term. Instead, focus shifted toward the development of a new, best practice thermal treatment facility suitable for future waste stream types and capacity.

The WA Waste Authority (2013) reports that 'significant amounts' of industry waste, such as contaminated soils (hydrocarbon/miscellaneous), produced in the Pilbara, primarily generated from resource activities, are trucked back to Perth rather than managed within the Pilbara region. A majority of landfills in the Pilbara are approaching full capacity and other landfills do not meet industry standards. There are currently no Class III or IV landfills in the region – suitable for the disposal of the region's many hazardous and industrial wastes.

The waste disposal process typically involves both the cost of transport to Perth and the cost of stabilisation. Stabilisation is required prior to disposal of the waste in landfill, often utilising low level stabilisation media (e.g. woodchips). The risks inherent with current waste disposal practice are likely to be exacerbated with the predicted growth in resources sectors, particularly the oil and gas industry.

After decommission of the Toxfree industrial incinerator, planning began for a new thermal treatment 'waste to energy' facility. Karratha was chosen as the most feasible location (rather than Port Hedland), predominantly due to its operation as a services base to support the oil and gas as well as the mining sectors. A more secure tenure of land was also available at the Karratha location.

The main waste streams that will be treated at the facility, if and when approved, are any hydrocarbon related wastes, outputs of the oil and gas and iron ore industries, such as drilling muds, greases, hydrocarbon contaminated soils and sludges and other organic wastes. The facility will include an Indirect Thermal Desorption Treatment (ITD) technology for the recovery of hydrocarbon products (e.g. drilling fluids) and a high temperature incinerator for the destruction of some hydrocarbon by-products from the ITD process. The facility will only incinerate waste that does not have a beneficial use and hence cannot be recovered. Those waste streams that can be recovered, such as hydrocarbons, could be used as input to alternative fuels.

The trade-off between environmental outcome and disposal cost is central to the operation of the Toxfree waste to energy facility. Compared to the cost associated with stabilisation and landfill in Perth, the waste to energy facility will only achieve a return on capital at disposal rates exceeding the current landfill option. With waste producers generally favouring the lowest cost solution, the gap in disposal costs may result in further landfilling of hazardous waste.

When comparing landfill regulations across Australian jurisdictions, it is evident that whilst restrictions are widespread, landfilling criteria differ by jurisdiction. Investment in new technologies, with improved environmental outcomes, is capital intensive and may be better encouraged if common national landfill rules were established. Further issues are related to the enforcement of landfill regulations. For example, if hydrocarbon impacted wastes were prohibited from landfill, increased regulator enforcement activity would be required, with this task potentially more challenging in a large state such as Western Australia.

6. Harmonisation opportunity assessment

This section distils harmonisation opportunities from Section 5 and considers feasibility and the possible benefits of addressing them.

Opportunities at the interface between TDG (and WHS) regulation and hazardous waste environmental regulation are considered first, followed by opportunities within environmental protection regulation.

A comparative assessment of the various opportunities, based on ratings of feasibility and benefit, is also included.

6.1 Assessment approach

Opportunities were rated as being of 'high', 'medium' or low' (environmental and industry) benefit.

Opportunities were also assessed as feasible in the 'near term', 'medium term', 'long term' or 'very long term'. 'Near term' (i.e. indicatively within three years) feasibility is where any requirement for re-engineering of regulatory processes is considered nil or limited only. 'Medium term' (three to five year) feasibility is where harmonisation development work will be required within hazardous waste environmental regulation or between regimes. 'Long term' (more than five years) feasibility would require broad-ranging review and harmonisation work (within hazardous waste environmental regulation).

Ratings are based on the project's research and analysis and should be considered provisional pending detailed analysis, where required. For example, in those cases where the costs of harmonisation are likely to be significant, quantification of benefits would be appropriate.

6.2 Harmonising across regulatory systems

6.2.1 Approach to risk

There is an opportunity to harmonise the approach to risk between the two regimes, where transport of dangerous goods regulation involves a better matching of regulatory requirement to risk than the hazardous waste regime.

This occurs through:

- Systematic use of thresholds below which goods are not considered dangerous
- More gradated targeting of enforcement activity (refer to Section 6.2.4)
- Limiting routine industry interaction with government to licensing and enforcement (audit) activity, noting, in particular, that there is no dangerous goods movement tracking requirement.

The WHS regime has moved further again, largely limiting the requirement for licensing to hazardous chemicals storage and handling at major hazard facilities and replacing the routine licensing requirement with a 'lighter touch' notification regime.

In contrast, the hazardous waste regime regulates movement of hazardous wastes, an activity that is at some remove from the real source of the regulatory risk – i.e. inappropriate treatment and disposal, which is also regulated. Jurisdictions could review their hazardous waste regulatory frameworks, with a view to better aligning environmental impact risk and regulatory requirement. However, close to full alignment of hazardous waste regulatory regimes would be a prerequisite of harmonisation with the TDG regime in this area (refer to Section 6.3).

Benefits would be positive in terms of reduced cost for industry, reduced administrative costs and possibly environmental impact.

6.2.2 Improved dangerous goods coding of hazardous wastes

There is an opportunity to remove gaps in dangerous goods coding of hazardous wastes.

Limited available dangerous goods codes for hazardous wastes, in Class 9 and elsewhere in the ADG Code, can result in inaccurate labelling and placarding of hazardous wastes. Industry cites fertiliser mixes and diesel mixes as examples. Over-reliance by waste generators and transporters on the product description as shown on the original 'virgin product' safety data sheet may also contribute to the problem.

Jurisdictions would need to agree the list of hazardous wastes, where dangerous good coding is inadequate. This could be a component part of a project to harmonise NEPM codes (refer to Section 6.3.1). It would also be necessary for Australia to take any additional proposed codes to the United Nations Economic and Social Council Sub-committee of Experts on the Transport of Dangerous Goods for consideration for inclusion in the international code.

In addition, as noted in Section 4.1.2, a combination of stronger enforcement of the WHS regulatory requirement to generate a new safety data sheet where a new 'hazardous chemical' is produced through the waste generation process, combined with technical assistance, where required, would also support improved dangerous goods coding of hazardous wastes.

While public safety and environmental impact benefits are not known, this would provide greater certainty to waste transporters and receivers.

6.2.3 Paperless trucks

With a progressive move to on-line systems, there is an opportunity to replace consignment notices, which accompany the load inside the vehicle, with mobile devices.

A first step to achieving this is a national on-line hazardous waste tracking regime (refer to Section 6.3.4). This could then be extended to ensure that all of the 'links' in the transport supply chain are included in the system – the prerequisite for paperless trucks. However previous experience with a proposal to introduce electronic stability control for dangerous goods vehicles in advance of other heavy vehicles (refer to Section 5.1.9) suggests that this measure may be difficult to implement other than on a 'whole of road transport' basis. This suggests a very long term time-line.

Benefits include a quicker and better informed response in the road accident situation from emergency services, which would have earlier and more certain access to load characteristics information and administrative cost savings for both industry and government.

6.2.4 Transport licence requirements

There is an opportunity to remove the double licensing requirement whereby vehicles are licensed under both dangerous goods and environmental protection regulations.

There appears to be no sound rationale for retaining licences for vehicles moving hazardous waste in circumstances where the vehicle already has a dangerous goods licence. New South Wales has plans to issue a single licence to cover both dangerous goods and hazardous waste transport. While New South Wales arrangements, where the same organisation has administrative responsibility for both hazardous waste and dangerous goods (tanker) transport, are unique, other jurisdictions could choose to follow these plans.

Driver licensing, under environmental protection arrangements, as in place in Victoria and Western Australia, could also be removed.

This change should offer operating cost savings for both industry and government.

6.2.5 Approach to enforcement

There is an opportunity to harmonise approaches to enforcement, aligning the hazardous waste regulatory approach with the more pre-emptive and pro-active dangerous goods approach.

Jurisdictions would first need to review their regulatory frameworks to better align regulatory requirement with risk and target enforcement activity accordingly (refer to Sections 6.2.1 and 6.3.7).

Despite the existence of a nationally consistent code, industry notes room for improvement in the consistency of dangerous goods enforcement activity across the country. Focused effort for a substantial period of time may therefore be required to produce a fully harmonised approach to enforcement.

6.2.6 Communication with industry

There is an opportunity to improve and coordinate communication with industry.

Industry values communication about forthcoming regulatory changes and the associated timing, as this enables it to plan workforce training, investment and other aspects. It considers that regulator communication about both WHS changes and ADG Code changes is less than required. In addition, neither of these two regulatory regimes appears to explicitly acknowledge the other, which, particularly given their past closeness (refer to Section 3.2.1), can be a further source of uncertainty.

Expectations regarding communication from hazardous waste regulators, who are seen as low profile, appear to be quite low. However, communicating hazardous waste labelling and placarding requirements is seen as important, particularly in the context of the desired more comprehensive dangerous goods coding of hazardous wastes (refer to Section 6.2.2).

Improved coordination on communication with industry between the TDG and WHS regimes is considered highly feasible, while noting the distinct policy accountabilities (refer to sections 3.1 and 3.3.2). Both functions are housed in the same government agency in several jurisdictions. Improvement in coordinated communication between the ADG Code and hazardous waste environmental regulation would be feasible in the medium term, following development of nationally consistent NEPM codes (refer to Section 6.3.1).

Benefits are potentially far-reaching, including reduced costs and improved performance for both business and government.

6.3 Harmonising within hazardous waste environmental regulation

6.3.1 Harmonise or eliminate?

Given the costs for business of nationally inconsistent regulation, there is a prima facie case for harmonisation of existing hazardous waste environmental regulation. However, the benefits of harmonised regulations might still be less than the (presumably reduced) costs that they impose. Thus the prior question is whether or not regulations should be eliminated rather than harmonised.

National consideration of what if any regulations should be removed would be appropriate, so that any removal of regulations would be nationally consistent, in turn ensuring that the complementary harmonisation process was also national in scope. Possible areas for consideration here are the role of licensing versus notification, as in the WHS regime and the appropriate extent of the hazardous waste tracking requirement.

With regard to tracking, Australia's responsibilities under the Basel Convention are to track 'trans-boundary' (i.e. international) movements of hazardous waste, ensuring that both destination and transport arrangements are consistent with environmentally sound management. There is no international regulatory requirement to track domestic movements. Should therefore the NEPM be reformed so that tracking of individual movements is no longer required, while still providing for robust data capture on aggregate movements to meet Australia's reporting requirements?

Or should those hazardous wastes that are part of established resource recovery markets be exempted from tracking – as currently occurs in two jurisdictions that otherwise track hazardous waste, in connection with used lead acid batteries – while other tracking requirements remain in place? Here also robust alternative aggregate data reporting mechanisms would be needed, for example, through the small number of domestic processing firms.

6.3.2 Consistent set of NEPM codes and definitions

There is an opportunity to agree a consistent and nationally uniform set of hazardous waste codes and definitions for monitoring, reporting and (as required) tracking requirements.

Existing arrangements:

- Add additional complexity, delay and cost to industry operations in storing and transporting hazardous waste
- Complicate the process of aggregate hazardous waste data reporting and reduce the reliability of the estimates
- Are a barrier to harmonisation and coordination with other wholly or partially nationally consistent regulatory regimes, particularly dangerous goods transport and work health and safety

Development of a consistent set of codes and definitions is feasible, given strong national leadership aimed at developing and implementing either a model code (no legal force) or a set of national law.[51] Jurisdictions would need to agree, based on risk to the environment and to human health, on what is hazardous and what is non-hazardous, including all questions of thresholds.

Benefits are potentially substantial, including cost savings for industry and government, increased incentive to establish or expand a national scale of operations and improved environmental outcomes.

6.3.3 Additional NEPM codes for used products containing multiple wastes

There is an opportunity to establish additional and consistent codes for used products containing multiple wastes, which, principally due to the value of the metals they contain, are often prominent in hazardous waste movement for recovery purposes.

Western Australia has adopted used product-based codes for a range of waste battery types. These codes, together with others proposed by ABRI, could be considered for national adoption. Nationally consistent e-waste codes could also be developed.

Benefits include administrative streamlining and reduced costs for industry and government.

6.3.4 Consistent paperless consignment authorisations

There is an opportunity to establish a consistent paperless consignment authorisation regime, through a national on-line hazardous waste tracking system.

New South Wales has developed an on-line (interstate and intrastate) hazardous waste system, followed by South Australia and Western Australia. Linking systems could provide for a national system based on existing NEPM codes and would create a platform for a future system based on harmonised codes (refer to Section 6.3.2). Both opportunities should allow for business to establish their own interface with the system.

A non-harmonised on-line system should enable jurisdictions to calculate a hazardous waste mass balance, improving monitoring and data accuracy. While there are benefits for business in having their own interfaces with the system, full efficiency benefits depend on adoption of nationally consistent NEPM codes.

It is important that any consistent system is genuinely 'national' rather than 'inter-jurisdictional' only. If the latter, this would represent an additional (ninth) domestic tracking system and could threaten international data reporting underpinnings under the Basel Convention, particularly if intra-jurisdictional tracking were deprioritised.

However, prior consideration of what, if any, hazardous waste tracking can be eliminated rather than harmonised is also important, in the interest of lightening the burden on industry and on the proviso of

[51] Refer to Section 4.2 for a discussion of the difference between these approaches.

alternative data reporting arrangements being in place (refer to Section 6.3.1). Conversely, if national tracking is found to be required, increased tracking, in those jurisdictions currently without an internal tracking system, should also be considered, so that full national consistency can be achieved.

Benchmarking tracking arrangements in other countries, including other federations like Australia and other countries without adjoining land borders (also like Australia) may also be helpful before finalising the scope of eliminated or additional tracking.

6.3.5 Consistent storage thresholds

There is an opportunity to put in place consistent storage thresholds and potentially licence fee settings, commencing with used lead acid batteries.

Licences for storage, which trigger fees, apply in all jurisdictions. While regimes are complex, involving both licensing of premises and/or storage of particular wastes (refer to Appendix C), it should be possible in principle to establish a nationally consistent set of thresholds.

The principal benefit is administrative streamlining for both industry and government, particularly avoiding the effort currently required for businesses to ensure that they are in compliance with the requirements of each jurisdiction.

6.3.6 Consistent approaches to treatment and disposal

There is an opportunity to harmonise approaches to waste categorisation and levy arrangements for disposal with regard to treatment and disposal.

With somewhat different disposal philosophies evident in those jurisdictions with waste levies and with no levies in place in four jurisdictions, a consistent approach to disposal and treatment will face some challenges. Firstly, the New South Wales and South Australian approach involving (higher) metropolitan and (lower) regional levies would need to be reconciled with the Victorian approach involving categorisation on the basis of hazard and risk. Secondly, the non-levy jurisdictions would most likely need to adopt a levy regime. In this regard, the largest of the four non-levy jurisdictions, Queensland, is currently reviewing its regulatory system and is considering closely the Victorian model. The extent to which differences of geography and industry structure might impede a common approach require investigation, as does the scope for an improved incentive to treat waste combined with upgraded enforcement to overcome any such difficulties.

Benefits would include a reduction in longer distance hazardous waste movements, which levy (and gate fee) differentials currently incentivise. This accords with the ‘proximity principle’ under the Basel Convention. In addition there would be a stronger incentive to establish waste treatment facilities, including for recovery.

6.3.7 Consistent approaches to enforcement

There is an opportunity to improve and harmonise approaches to enforcement.

Firstly, simplification of regulatory regimes, based on risk assessment, would increase the perceived strategic importance of enforcement activity. With fewer, better targeted regulations, industry would face reduced form-filling, compared to current arrangements. Secondly, it would potentially release resources that could be redeployed into enforcement. Thus a harmonised approach to enforcement is an important but longer term objective.

Benefits include greater certainty and reduced costs for business and improved environmental outcomes.

6.4 Summary comparative assessment

Table 5 and Table 6 provide a summary comparative assessment of the various opportunities in terms of feasibility and likely benefit.

At the interface between the regulatory regimes, two opportunities, removal of road vehicle licence requirements and improved communication with industry are assessed as both feasible in the near term and highly beneficial.

Improved dangerous goods coding of hazardous wastes is rated as feasible in the medium term and of medium benefit. This benefit rating is provisional, pending investigation of the extent of health and environmental risk that would be avoided.

Harmonised approaches to risk and enforcement are rated as feasible in the longer term and of high benefit. Paperless trucks, also of high benefit, are assessed as feasible in the very long term.

Table 5 Regulatory interface opportunities – summary

No	Proposal	How feasible?	How much benefit?
1	Harmonised approach to risk		
2	Improved dangerous goods coding of hazardous wastes (1)		
3	Paperless trucks		
4	Removal of road vehicle licence requirements		
5	Harmonised approach to enforcement		
6	Improved communication with industry		

(1) Benefit assessment is provisional pending specific investigation.

Key:

- Feasible in the near term; high benefit
- Feasible in the medium term, following harmonisation development work within environmental protection; medium benefit
- Feasible in the long term, following broad ranging review and harmonisation work within environmental protection
- Feasible in the very long term and likely to require coordination on a whole of road transport sector basis

Within hazardous waste environmental regulation, all of the identified opportunities are assessed as high benefit.

Table 6 Hazardous waste environmental regulation opportunities – summary

No	Proposal	How feasible?	How much benefit?
1	Consistent set of NEPM codes and definitions		
2	Additional NEPM codes for used products containing multiple wastes		
3	Consistent paperless consignment authorisations		
4	Consistent storage thresholds		
5	Consistent approaches to disposal and treatment		
6	Consistent approaches to enforcement		

Key: As for Table 5

Adoption of additional NEPM codes for used products containing multiple wastes is considered both highly feasible and of high benefit. Consistent NEPM codes, consistent paperless consignment authorisations and consistent storage thresholds will all require significant development work and are considered feasible for the medium term.

7. Conclusions and recommendations

7.1 Harmonisation opportunities across regulatory systems

A threshold difficulty in harmonising across regulatory systems is the need for prior harmonisation between jurisdictions' hazardous waste environmental regulatory regimes. Absent this, no 'national partner' exists that could work with the TDG and WHS regimes to pursue the opportunities in in an efficient manner for common benefit.

7.1.1 Transport licences

An exception is the opportunity to remove the requirement to license vehicles and, where applicable (i.e. in Victoria and Western Australia) drivers, under environmental protection regulation in addition to TDG regulation. In this instance, no change in TDG regulation or practice is likely to be required. Moreover, while nationally consistent action is highly desirable, it is not essential that all jurisdictions act uniformly.

***Recommendation 1**: That hazardous waste environmental regulators, in consultation with TDG regulators as required, consider removal of transport licensing requirements where dangerous goods licensing arrangements are already in place and recommend a nationally consistent implementation strategy.*

7.1.2 Dangerous goods identification of hazardous wastes

In contrast, a nationally consistent approach among environmental protection regulators is essential in order to improve dangerous goods identification and labelling of hazardous wastes. A common position will be essential in liaising and negotiating as needed with TDG regulators. This could include a possible requirement for Australia, through the Department of Infrastructure and Regional Development, to raise matters in the UN ECOSOC Sub-committee of Experts on the Transport of Dangerous Goods.

The issue, however, requires involvement of persons from all three regulatory regimes, to identify, together with industry, a full set of problem areas and gaps and to set priorities, In particular, materiality, in terms of potential public safety risk in transport, is not currently known.

***Recommendation 2:** That a joint jurisdiction-industry working group be formed to: (a) identify key problem areas in the existing ADG coding of hazardous wastes; (b) prioritise areas on the basis of assessment of the extent of any public safety risk in transport and other relevant factors; (c) make recommendations to address identified problems and prepare a report to governments.*

7.2 Harmonisation opportunities within hazardous waste environmental regulation

7.2.1 Hazardous waste regulatory harmonisation strategy

In terms of broad regulatory models, the project finds that hazardous waste environmental regulation is not well aligned with the parallel TDG and WHS regulatory regimes. These two regimes:

- Are at least largely nationally uniform in core areas (with fees and charges the main exception)
- Focus both regulatory requirement and enforcement activity on thresholds, thereby better matching regulation with risk
- Limit routine industry interaction with government to licensing (and, in the WHS sphere, increasingly to 'lighter touch' notification) and audit/enforcement activity.

In contrast to hazardous waste environmental regulation, both regimes have also had the benefit of recent – and in the case of TDG also long-standing – institutionalised nationally coordinated action to develop and maintain uniform model regulations for adoption by jurisdictions.

Comparable harmonisation within hazardous waste environmental regulation is important to reduce the regulatory burden on industry and potentially improve environmental outcomes through, for example, better facilitating recovery of hazardous wastes with commercial value and better incentivising investment in hazardous waste treatment. Elimination of regulations should also be considered, consistent with maintained or improved environmental outcomes and with continuing to meet Australian's international reporting obligations under the Basel Convention.

In focusing on learnings from national transport regulatory reform, this report highlights the value of a dedicated government agency with a 'day job' to engineer nationally consistent regulatory recommendations among separate jurisdictions. It follows that there is a potential 'catch-22' if those with the specialist knowledge are not sufficiently available to inform the regulatory design process, as may more easily happen in the absence of such an agency. As an initial response, a short-term working group, drawn primarily from environmental regulators and which limits the initial call on the time of key people, may be appropriate to develop a reform strategy.

Recommendation 3: *That a working group involving environmental agencies of all nine jurisdictions consider the proposed hazardous waste regulation-specific actions outlined in this report (see 'Assessment of harmonisation opportunities' above) and develop a recommended strategy, including options for appropriate short, medium and longer term institutional arrangements to deliver the strategy.*

7.2.2 Benchmarking Australia's hazardous waste environmental regulation

Finally, as both an island continent and a federation, Australia faces weaker domestic pressure to harmonise its hazardous waste regulatory arrangements than many other nations. Combined with the Basel Convention's orientation towards both restricting movement of hazardous wastes (under the 'proximity principle') and involving government in the tracking of hazardous waste movements, the risk that the approaches of separate jurisdictions will impose high costs on industry without offsetting benefit is real.

As part of a process to design better national regulatory arrangements, including potentially eliminating certain regulations (e.g. elements of hazardous waste tracking) while continuing to meet international reporting obligations, it would be worthwhile to research domestic best practice in other countries, including federations and unitary systems and countries with and without adjoining land borders.

Recommendation 4: *That the Department of the Environment undertake a benchmarking study of domestic arrangements regarding the coverage and nature of regulations relating to the movement of hazardous waste in other relevant countries, including countries with federal systems, countries with unitary political systems and countries with and without contiguous land borders and make the results available to all jurisdictions.*

8. References

Australian Battery Recycling Initiative (2012a), *A national approach to the regulation of hazardous wastes - Submission to the National Waste Policy Working Group – Reducing Hazard and Risk* http://www.batteryrecycling.org.au/abri-proposal-to-simplify-hazardous-waste-regulations-for-batteries, 12 June

Australian Battery Recycling Initiative (2012b), *Hazardous waste and Dangerous Goods regulations for used lead acid batteries*, 14 March

Australian Transport News (2014) http://www.fullyloaded.com.au/industry-news/1402/sa-brings-heavy-vehicle-permits-back-in-house/, 26 February

Australian Transport News (2015a) http://www.fullyloaded.com.au/industry-news/1503/ata-2015-nhvr-may-take-five-years-to-be-a-fully-functioning-regulator/

Australian Transport News (2015b) http://www.fullyloaded.com.au/industry-news/1503/ata-2015-industry-may-hold-key-to-getting-wa-and-nt-to-accept-national-regulations/ , 24 March

Australian Transport News (2015c) http://www.fullyloaded.com.au/industry-news/1504/national-notice-step-looms-for-heavy-truck-and-dog-pbs/, 17 April 2015

Canadian Centre for Occupational Health and Safety (2015), *OHS Answers – Chemicals and materials*, http://www.ccohs.ca/oshanswers/chemicals/ld50.html

Department of the Environment (2013), *National Waste Reporting 2013 – Jurisdictional Waste Profiles Factsheet – Australian Capital Territory (ACT)*, http://www.environment.gov.au/topics/environment-protection/nwp/reporting

Department of the Environment (2015), *Portfolio Budget Statements 2015-16, Budget Related Paper No 1.7,* http://www.environment.gov.au/system/files/resources/bff3a5e3-17b1-4ce1-bec5-ce7eb4ab9af5/files/2015-16-pbs.pdf

Department of Infrastructure and Regional Development (2014), *Transport of dangerous goods Competent Authorities Panel – Guide for applicants,* Version 1.0 September 2014 http://www.infrastructure.gov.au/transport/australia/dangerous/files/CAP_user_guide_09-2014.pdf

International Civil Aviation Organisation (2015) Annex 18 http://www.icao.int/safety/DangerousGoods/Pages/annex-18.aspx

International Maritime Organisation (2006), *International Maritime Dangerous Goods Code* https://law.resource.org/pub/us/cfr/ibr/004/imo.imdg.1.2006.pdf

National Environment Protection (Movement of Controlled Waste Between States and Territories) Measure (2012) as varied November 2012, p 14

National Transport Commission (2011a), *Heavy Vehicle National Law Regulation Impact Statement*, September http://www.ntc.gov.au/heavy-vehicles/rules-compliance/heavy-vehicle-national-law/

National Transport Commission (2011b), *Rail Safety National Law Regulatory Impact Statement*, November http://www.ntc.gov.au/publications/ntc-publications-2011/

National Transport Commission (2014), *Australian Code for the Transport of Dangerous Goods by Road and Rail,* August

National Transport Commission (2015), *Explanation of Transport of Dangerous Goods Laws Amendment Package No.3*, February

OECD (2001), *Decision of the Council concerning the Control of Transboundary Movements of Wastes Destined for Recovery Operations*, 14 June 2001, as amended http://acts.oecd.org/Instruments/ShowInstrumentView.aspx?InstrumentID=221&InstrumentPID=217&Lang=en&Book=False

Potterton, P. (2012), '30 years of Australian transport policy: what makes for success?' Australasian Transport Research Forum http://www.atrf.info/papers/2012/2012_Potterton.pdf

Queensland Cabinet and Ministerial Directory (2013), *Waste Reduction and Recycling and Other Legislation Amendment Regulation* (No. 1) https://www.legislation.qld.gov.au/LEGISLTN/SLS/RIS_EN/2013/13SL182E.pdf

Safe Work Australia (2012), *Guidance on the Classification of Hazardous Chemicals under the Work Health and Safety (WHS) Regulations* http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/guidance-classification-whs-regulations

Safe Work Australia (2014), *Model Work Health and Safety Regulations* http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/616/Model-WHSRegulations-January-2014.pdf

United Nations Economic Commission for Europe (UNECE) (2009), *Globally Harmonized System of Classification and Labelling of Chemicals*, 3rd revised editionhttp://www.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html

UNECE (2011), *European Agreement concerning the International Carriage of Dangerous Goods by Road* http://www.unece.org/trans/danger/publi/adr/adr2011/11contentse.html

UNECE (2013a), *Recommendations on the Transport of Dangerous Goods Model Regulations* http://www.unece.org/fileadmin/DAM/trans/danger/publi/unrec/rev18/English/Rev18_Volume1.pdf

UNECE (2013b), *Guiding Principles for the Development of the UN Model Regulations* http://www.unece.org/fileadmin/DAM/trans/danger/publi/unrec/GuidingPrinciples/Guiding_Principles_Rev18.pdf

United Nations Environment Program (1989), *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal,* http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx

Western Australia Waste Authority (2013)*, Waste Management Infrastructure - Constraints and Limitations of Waste Management in the Pilbara* http://www.pdc.wa.gov.au/publications/

Appendices

Appendix A – Stakeholders consulted

The following stakeholders were either consulted directly, or provided submissions in response to the project issues paper, or both.

Nine government agencies also attended a project workshop, by phone link from GHD capital city offices, on 16 April 2015.

Table A1 Industry stakeholders

Industry	Date(s)
Australian Council of Recycling (ACOR)	30 March 2015
Australian Battery Recycling Initiative (ABRI)	7 April 2015 30 April 2015
Australian Trucking Association (ATA)	8 April 2015
Enirgi	6 May 2015
Simon National Carriers	21 May 2015
South East Qld Hauliers	25 May 2015
Toll Group	9 April 2015
Tomago Aluminium Company	7 April 2015
Toxfree Australia	26 March 2015 20 May 2015
Transpacific Industries	21 April 2015

Table A2 Government stakeholders – Hazardous waste

Government – Hazardous waste	Date
Department of Environment and Heritage Protection (DEHP) Queensland	27 March 2015
EPA South Australia	17 March 2015
EPA Tasmania	16 March 2015
EPA Victoria	23 March 2015
EPA Western Australia	16 March 2015
New South Wales EPA	19 March 2015
Northern Territory EPA	20 March 2015

Table A3 Government stakeholders – Transport of dangerous goods

Government – Transport of dangerous goods	Date
Department of Mines and Petroleum (DMP) Western Australia	27 March 2015
Department of Transport and Main Roads (TMR) Queensland	2 April 2015
New South Wales EPA	19 March 2015
SafeWork South Australia	10 April 2015
WorkSafe Northern Territory	20 March 2015
WorkSafe Tasmania	24 March 2015

Table A4 Government stakeholders – Commonwealth / National

Government – Commonwealth / National	Date
Department of Infrastructure and Regional Development	26 February 2015
National Transport Commission	27 February 2015
National Heavy Vehicle Regulator	23 June 2015
Safe Work Australia	12 March 2015

Appendix B – Dangerous goods and hazardous wastes

The relationship between dangerous goods and hazardous wastes is such that each regime makes reference to the other.

The ADG Code provides a 'catch all' category for hazardous wastes, whilst the Controlled Waste NEPM references the dangerous goods class system in defining waste characteristics.

The ADG Code

The ADG Code sets out the requirements for transporting dangerous goods by road or rail. Any substance (including mixtures and solutions) or article subject to the code is assigned to one of the nine classes shown in Table B1. This classification is made according to the hazard, or most predominant hazard, presented by the substance. A number of the dangerous goods classes are subdivided into specific divisions.

Table B1 Australian Dangerous Goods classes

Dangerous goods class	Division	Description
Class 1: Explosives*	1.1	Substances and articles which have a mass explosion hazard
	1.2	Substances and articles which have a projection hazard but not a mass explosion hazard
	1.3	Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard
	1.4	Substances and articles which present no significant hazard
	1.5	Very insensitive substances which have a mass explosion hazard
	1.6	Extremely insensitive articles which do not have a mass explosion hazard
Class 2: Gases	2.1	Flammable gases
	2.2	Non-flammable, non-toxic gases
	2.3	Toxic gases
Class 3: Flammable liquids	*n/a*	*n/a*
Class 4: Flammable solids; substances liable to spontaneous combustion; substances which, on contact with water, Emit flammable gases	4.1	Flammable solids, self-reactive substances and solid desensitised explosives
	4.2	Substances liable to spontaneous combustion
	4.3	Substances which in contact with water emit flammable gases

Dangerous goods class	Division	Description
Class 5: Oxidising substances and organic peroxides	5.1	Oxidising substances
	5.2	Organic peroxides
Class 6: Toxic and infectious substances	6.1	Toxic substances
	6.2	Infectious substances
Class 7: Radioactive material*	*n/a*	*n/a*
Class 8: Corrosive substances	*n/a*	Acids and alkalis
Class 9: Miscellaneous dangerous substances and articles, including environmentally hazardous substances.	*n/a*	*n/a*

*Class 1 and 7 dangerous goods are not subject to the code, except 'insofar as they are transported with other dangerous goods. The code states that 'reference should be made to the Australian Explosives Code or the Code of Practice for the Safe Transport of Radioactive Substances as appropriate and the legislation covering transport of those classes in the particular jurisdiction.'

Source: National Transport Commission (2014)

Hazardous waste classification under the ADG Code

The ADG Code acknowledges that many substances assigned to Classes 1 to 9 are environmentally hazardous, without being labelled so. Wastes must be transported according to the requirements associated with the appropriate classification considering the hazards and criteria in the code.

Class 9 substances are defined as those that present a danger during transport, but are not covered by other classes. As such, a substance deemed to be environmentally hazardous by the Basel Convention (or a competent authority), which does not meet the criteria for any other hazard classes, may be transported under Class 9 as an 'environmentally hazardous substance'.

A list of key environmental Class 9 dangerous goods is provided in Table B2, which includes asbestos, lithium batteries and environmentally hazardous substances (solid and liquid).

Table B2 Environmental Class 9 dangerous goods

UN Number(s)	Class 9 substances	Description
2212	Substances which, on inhalation as fine dust, may endanger health	Blue asbestos
2212		Brown asbestos
2590		White asbestos
3480, 3090	Lithium batteries	Lithium ion/ lithium metal batteries
3481, 3091		Contained/packed within equipment
3077	Environmentally hazardous substances	Environmentally hazardous substance, solid, N.O.S
3082		Environmentally hazardous substance, liquid, N.O.S

Source: National Transport Commission (2014)

Relationship between NEPM and ADG Code classifications

The Movement of Controlled Wastes NEPM details hazardous waste categories and characteristics, which if met, classify a waste as a 'controlled waste'. Each of the controlled waste characteristics listed in the NEPM makes reference to a dangerous goods class and the NEPM refers to all classes with the exception of Classes 2 (Gases) and 7 (Radioactive material).

Mapping of controlled waste characteristics to dangerous goods Classes, as per the NEPM regulation, is presented in Table B3. It is noted that the terminology used in the NEPM when referring to Class 9 dangerous goods is different from that in the current ADG Code, being based on an earlier formulation.

Table B3 Dangerous goods to hazardous wastes mapping

Dangerous goods class	Characteristic	NEPM controlled waste characteristic
1	Explosive	✓
2	Gases	✗
3	Flammable liquids	✓
4.1	Flammable solids	✓
4.2	Substances or wastes liable to spontaneous combustion	✓
4.3	Substances or gases which, in contact with water, emit flammable gases	✓
5.1	Oxidising	✓
5.2	Organic peroxides	✓
6.1	Poisonous (acute)	✓
6.2	Infectious substances	✓
7	Radioactive material	✗
8	Corrosives	✓
9	Liberation of toxic gases in contact with air or water	✓
	Toxic (delayed or chronic)	✓
	Ecotoxic	✓
	Capable of yielding another material which possesses preceding characteristics	✓

Source: National Environment Protection (Movement of Controlled Waste between States and Territories) Measure (2012) and National Transport Commission (2014)

Appendix C – Regulatory instruments and fees

This appendix outlines regulatory instruments, principally licences, but including permits, approvals, certificates and other instruments, together with a summary of applicable fees, across the three regulatory regimes considered in this report.

Work health and safety

Work health and safety (WHS) regulation incorporates requirements relating to the storage of hazardous substances in the workplace. The model WHS regulations (finalised in 2011) reference the third revised edition of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), an internationally agreed system of chemical classification and hazard communication published by the United Nations. Model WHS regulations have been adopted by all jurisdictions in Australia with the exception of Victoria and Western Australia. However, the Australian Capital Territory has not adopted the hazardous chemicals chapter of the model WHS regulations.

Transition to the GHS

Although the model WHS regulations reference the GHS, it will not be mandatory for new chemicals to be labelled in accordance with the GHS until 1 January 2017 onwards. Presently no jurisdiction has fully transitioned to the GHS and, in particular, South Australia has delayed adoption of the GHS in the context of impending loss of licensing revenue associated with the WHS notification system.

Notification and licensing system

The storage of hazardous chemicals is regulated by notification and licensing mechanisms under the model WHS regulations.

Hazardous chemicals – placard and manifest quantities

Under the model WHS regulations there are provisions for the use, handling and storage of hazardous chemicals at a workplace. The hazardous chemicals covered under these general provisions are detailed in Schedule 11 of the model WHS regulations[52].

A person conducting a business or undertaking (PCBU) must ensure that a placard is prominently displayed at a workplace if the quantity of a Schedule 11 hazardous chemical exceeds the placard quantity. Furthermore, in workplaces where the quantity of a Schedule 11 hazardous chemical used, handled or stored exceeds the manifest quantity, there is a requirement to notify the regulator.

Major hazard facilities – threshold quantities

A major hazard facility is defined as a facility at which Schedule 15 chemicals are present (or are likely to be present) in a quantity that exceeds the threshold quantity. Threshold quantities are detailed in Schedule 15 of the model WHS regulations[53]. Requirements for hazardous chemicals at major hazard facilities differ from the placard and manifest quantity provisions, and involve either facility notification or licensing.

An operator of a facility where Schedule 15 chemicals are (or are likely to be) present in a quantity exceeding 10 per cent of the threshold quantity must notify the regulator of this circumstance. It is noted that hazardous wastes classified only under a Class 9 classification, which include a number of hazardous wastes, are exempt from this list. There are no fees associated with notifications except in Tasmania.

[52] Safe Work Australia (2014)
[53] Safe Work Australia (2014)

Following the notification, the regulator may conduct an inquiry and 'determine' the facility to be a major hazard facility if the potential for major incidents to occur is identified. The regulator can also make a determination confirming a facility as a major hazard facility if the notification discloses that a threshold has been exceeded. I f a facility is determined a major hazard facility after inquiry, it is required to pay the relevant licensing fee (refer to Table C1).

A facility at which a quantity of Schedule 15 chemicals exceeds the threshold quantity is required to be licensed as a major hazard facility. For these facilities, there is a licence fee payable (refer to Table C1).

Victoria, Western Australia and the Australian Capital Territory have their own regulatory framework for major hazard facility determination and licensing.

Fees

Notification fees for exceeding manifest quantities are charged only in New South Wales ($100) and Tasmania ($148) under the WHS regulations.

Considering major hazard facilities, fees vary across jurisdictions from $0 to $95,203, with jurisdictions charging a range of fee types including notification fees, application fees, and administration fees. In a number of jurisdictions, the fee amount is dependent on the classification of the facility (i.e. Tier 1, 2 or 3, as explained in Table C1), indicating that fees are linked to risk.

Table C1 Notification and licence fees under the WHS

Jurisdiction	Fee type		Fee
New South Wales	Notification fee – manifest quantity notification		$100
	Notification fee – Major hazard facility		$0
	Determined major hazard facility administration fee		$41,400 (plus $101 per hour of the regulator's time)
	Administration fee for licensed major hazard facilities		$41,400 (plus $101 per hour of the regulator's time)
Queensland	Notification fee (all)		$0
	Application for major hazard facility licence		$161
	Major hazard facility annual licence fee	*Tier 1*	$16,070
		Tier 2	$29,460
		Tier 3	$42,850
South Australia	Notification fee (all)		$0
	Application for major hazard facility licence	*Tier 1*	$31,734
		Tier 2	$63,469
		Tier 3	$95,203
	Annual fee payable by operator of major hazard facility (on or before each anniversary of the date on which licence was granted)	*Tier 1*	$21,156
		Tier 2	$42,312
		Tier 3	$63,469
Tasmania	Notification fee – manifest quantity notification		$148
	Notification fee – Major hazard facility		$250

Jurisdiction	Fee type		Fee
	Application for major hazard facility licence		$250
Australian Capital Territory	Omits model Chapters on hazardous substances and major hazard facilities		
Northern Territory	Notification fee (all)		$0
	Application/renewal of major hazard facility licence	*Tier 1 (storage, repacking and distribution of chemicals)*	$10,000
		Tier 2 (not tier 1 or 3 uses)	$25,000
		Tier 3 (chemicals used in multiple processes)	$45,000

Source: Safe Work Australia (2014) and GHD analysis

Transport of dangerous goods

Vehicle and driver licences

Uniform dangerous goods transport legislation and regulation requires all jurisdictions to license both vehicles and drivers transporting dangerous goods. In general, a licence is required when dangerous goods are transported in a receptacle with a capacity greater than 500 kilograms (or litres), or in intermediate bulk containers (IBCs) with a capacity above 3000 L.

In most jurisdictions, a vehicle licence is required for vehicles that transport dangerous goods above the threshold capacity, with the exception of prime movers and converter dollys, as per Model Legislation. However in Western Australia, only 'road tank vehicles', where the tank comprises an integral structural part of the vehicle, require a vehicle licence. In New South Wales there are plans to issue a single licence to cover both dangerous goods and hazardous waste transport.

Licence duration and application fees relating to both vehicle and driver licences vary by jurisdiction. Whereas a number of jurisdictions (Tasmania, Northern Territory, Australian Capital Territory, Victoria) directly adopt the 'up to five year' licence period from the Model Legislation, the licence duration in other jurisdictions varies from one to five years.

Table C2 Dangerous goods fees (per annum)

Jurisdiction	Driver licence	Vehicle licence	Approval application (per approval)
New South Wales	$11.40	$17.40	$341
Victoria	$0.00	$12.00	N/A
Queensland	$16.30	(< 8 tonne) $62.50 (> 8 tonne) $125.20	N/A
Western Australia	$20.40	$128.00	$265
South Australia	$24.20	$144.70	$314
Tasmania	$14.80	$29.60	$148
Australian Capital Territory	$15.60	$41.40	$407
Northern Territory	$12.00	$17.20	$265

Source: Various and GHD analysis

There is some limited lack of consistency in licence fees even when fees are compared on a per annum basis (refer to Table C2).[54] Fees are either greater than $125 per annum (in three jurisdictions) or less than $63 per annum. Similarly, fees for dangerous goods driver licences vary from $0 to $24 per annum, with Victoria not charging a fee for driver licences.

Tank design approvals

The ADG Code requires that the jurisdictional competent authority approve the tank design of any tank that is used to transport dangerous goods. Without design approval, a dangerous goods vehicle licence will not be issued.

Approval application fees for tank design range from $148 to $407 per approval (refer to Table C2).

Heavy vehicle road user charges

In the broader road transport context, transport of dangerous goods is also subject to costs such as heavy vehicle charges. In Australia, the heavy vehicle charging model comprises both a fixed annual registration fee and a fuel-based road-user charge. Charges are determined by the NTC in accordance with the Model Heavy Vehicle Charges Act and principles set by the Transport and Infrastructure Council and the Council of Australian Governments.

Registration charges are set at the commencement of each financial year and are a function of vehicle/trailer type and axle number. For load carrying vehicles, registration charges vary between $566 (Truck, 2 axle) and $10,866 (Multi-combination prime mover, 5 axle) per annum. Registration charges for load carrying trailers are $574 per axle, other than for B-double lead and B-triple lead and middle trailers. Charges increase from $574 per axle (single axle group) to $1,150 per axle (quad-axle group and above) with larger axle groups.

The fuel-based road-user charge, applicable to each litre of diesel used on public roads by a heavy vehicle during a given financial year, is currently 26.14 cents per litre.

Hazardous waste environmental regulation

Under the hazardous waste regulatory regime, regulated activities pertaining to hazardous waste include the transport of hazardous waste and activities conducted at (hazardous waste) premises.

Regulation of an activity is achieved through a mechanism such as a licence, permit, certificate or levy. Mechanisms will typically include thresholds, for example a quantity above which a licence may be required, and fees payable dependent upon the activity. When comparing jurisdictions, it is evident that a lack of consistency exists when comparing the fees associated with regulated activities. Fee systems tend to be based on either ‘user pays’ or cost recovery principles, but indication of a move toward risk-based (i.e. more case by case) licensing is apparent in some jurisdictions.

Hazardous waste transport

Licences

Licences are the most common mechanism used to regulate hazardous waste transport. In five jurisdictions (New South Wales, South Australia, Northern Territory, Queensland, Australian Capital Territory), the transport of hazardous waste requires an environment protection licence (or equivalent) as it is identified as an activity that may potentially harm the environment. This is issued to any person, organisation or operator. In New South Wales, Queensland and Australian Capital Territory a licence is only required if a waste quantity threshold is exceeded – 200 kilograms (or 2 tonnes of tyres)

[54] For per annum comparisons, the ‘up to five year’ licence duration is assumed to be the maximum five year period.

in the Australian Capital Territory and New South Wales and 250 kilograms in Queensland (for waste transported on a non-commercial basis)[55].

In Western Australia, a licence is required for the carrier, driver and vehicle for 'bulk' controlled waste – controlled waste transported in a tank. A carrier who transports controlled waste in a vehicle or tank licensed under the relevant Western Australia Dangerous Goods regulation does not need to apply for a bulk controlled waste vehicle licence, but still requires a carrier licence. For all other controlled waste transport, the waste is termed 'packaged' and whilst the carrier is still required to be licensed, the driver and vehicle only need to be listed with the Department of Environment Regulation.

Victorian regulation requires the owners of vehicles transporting prescribed industrial waste to hold an EPA permit for each vehicle used to transport waste. However, an exemption exists for non-commercial loads of less than 50 kilograms and for loads transported to a site exempt from the permit and tracking system. In addition, a person who drives a vehicle permitted to transport prescribed industrial waste must have a driver certificate, obtainable from the Victorian Waste Management Association.

The transport of controlled waste in Tasmania requires application for registration as a controlled waste handler. Handling of controlled waste registration is required for producers, transporters and facility operators. The length of time of the registration is unclear in the controlled waste tracking regulations.

Fees

A broad comparison of inter-jurisdictional consistency regarding licence fees is not straightforward. Each jurisdiction's licence fee structure is distinct with licence fees dependent upon a number of factors (refer to Table C3).

In South Australia and New South Wales the per annum fees for an environment protection licence to transport hazardous waste are $115 and $476. The Northern Territory also charges a single per annum licence fee, approximately $383, but there is an additional 'waste handled' fee charged on a per tonne basis.

Both Queensland and the Australian Capital Territory employ fee structures dependent on the number of vehicles authorised to transport waste, but the scale of fees varies widely even when comparing these similar fee structures. Fees are two to six times greater in Queensland ($1,656 to $9,933 per annum) than in the Australian Capital Territory ($591 to $2,366 per annum). One year licence fees for carrier, driver and vehicle licences in Western Australia are all $225, with an option for three and five year licences also available.

Fees associated with permits issued to transport prescribed industrial waste (PIW) in Victoria depend on both the quantity and type of waste; with fees ranging from $258 to $2,142 per annum.

In Tasmania, regulations state that based on current fee unit values, application for registration as a controlled waste handler is $296.

[55] In New South Wales, licence only required when over 200 kilograms of Category 1 trackable waste (within New South Wales) or Category 2 waste (to/from another jurisdiction) is transported. In Queensland waste transported on a commercial basis always requires a licence.

Table C3 Hazardous waste transport licence fees (per annum)

Jurisdiction	Fee type		Fee
New South Wales	*Annual fee (above threshold)*		$476
Victoria	*Putrescible organic waste or inert sludges or slurries, clinical or related wastes (R100, K100, K120, K200, T130 only)*	*Less than 1.5 tonnes*	$258
		1.5 - 30 tonnes	$520
		30 tonne and above	$1,364
	Prescribed waste which is explosive, flammable or highly reactive (G100–G160, E100–E130 only)	*Less than 1.5 tonnes*	$454
		1.5 - 30 tonnes	$778
		30 tonnes and above	$2,142
	All other waste codes	*Less than 1.5 tonnes*	$391
		1.5 - 30 tonnes	$649
		30 tonnes and above	$1,880
Queensland	*1 - 5 vehicles*		$1,656
	6 - 35 vehicles		$4,967
	More than 35 vehicles		$9,933
Western Australia	*Carrier licence*		$225
	Vehicle licence		$225
	Driver licence		$225
South Australia	*Annual fee*		$115*
Tasmania	*Registration fee*		$296
Australian Capital Territory	*0 - 3 vehicles*		$591
	3 - 7 vehicles		$1,182
	7 - 11 vehicles		$1,774
	More than 11 vehicles		$2,366
Northern Territory	*Annual fee*		$383
	Plus waste handled fee ($0.0575/tonne or kL)		

Note: * South Australia licence is only available on a five year basis.

Source: Various and GHD analysis

Waste transport certificates

Waste transport certificates accompany the movement of a hazardous waste load and are required for tracking and safety purposes.

When wastes are transported between the majority of jurisdictions, both a waste tracking certificate and consignment authorisation from the recipient jurisdiction are required for the movement to occur. In Western Australia however, a single controlled waste tracking form is required when transporting waste into or out of the State. Consignment authorisations are valid for a period of not more than a year, with the waste producer/generator required to specify anticipated loads over this period.

Waste transport certificate fees are less than $5 in each jurisdiction except Western Australia, which has fees greater than $40. This comparatively high tracking certificate fee is offset by lower controlled waste licence fees in the State.

Intra-jurisdictional tracking requirements for hazardous wastes differ from inter-jurisdictional requirements which are governed by the NEPM. Table C4 identifies those hazardous wastes, as identified by the NEPM, which are not tracked within the respective jurisdiction according to environmental regulation.

It is noted that certain wastes classified as hazardous (under the NEPM) are not deemed hazardous in some jurisdictions. These include tyres in Victoria, and contaminated soils in Queensland.

Table C4 Hazardous wastes not tracked within jurisdictions

Jurisdiction	Hazardous wastes not tracked intrastate (NEPM code)
New South Wales	Animal effluent wastes (K100) Grease trap waste (K110) Tannery wastes (K140) Wool scouring wastes (K190) Asbestos (N220)* Tyres (T140)* *Exemptions, that predate current regulation, exist for the following wastes such that tracking is not required* Zinc wastes destined for re-use (D230) Waste batteries destined for re-use (D220) Spent pickle liquor destined for re-use (B100) Non-hazardous waste hydrocarbon oil destined for recycling (J100) Tracking of clinical and other specified wastes (R100)
Victoria	Tyres (T140)*
Queensland	Contaminated soils (N120)*
Western Australia	Asbestos (N220) Used lead acid batteries (D221)*
South Australia	Animal effluent wastes (K100) Tannery wastes (K140) Wool scouring wastes (K190)
Tasmania	All hazardous waste generated is considered to be non-tracked hazardous waste, due to the absence of a formal waste tracking system.
Australian Capital Territory	
Northern Territory	

Source: Jurisdictional regulations, consultation and GHD analysis

Note: * Although not considered a hazardous waste in Victoria, waste tyre storage regulations were introduced in May 2015. The status of contaminated soils as a hazardous waste in Queensland is currently under review. D221 is a Western Australia specific waste code, no NEPM used lead acid battery code currently exists. In New South Wales, the POEO (Waste) Regulation 2014 has introduced reporting requirements for the intrastate transportation of waste tyres and asbestos that has similar elements to waste tracking.

Hazardous waste storage

Licences

The storage of hazardous waste is regulated through an environment protection licence (or equivalent) in each jurisdiction. Despite this common mechanism, an inter-jurisdictional comparison of licences exhibits a low level of consistency.

Jurisdictional environment protection licences regulate the hazardous waste storage activity through either licensing the premises or the activity directly, depending on the waste type (refer to Table C5). Licensing of hazardous waste storage is typically subject to waste quantity thresholds, which are based on either annual waste tonnage or current storage quantities. The applicable threshold is also dependent on the type of hazardous waste stored.

Fees

Annual licence fees pertaining to hazardous waste storage are a function of the licence type (premises or activity), thresholds and the hazardous waste stored (refer to Table C5).

When considering liquid/solid waste facilities, fees are markedly higher in South Australia with a range of $640 to $32,000 per annum compared to Victoria ($1,083 to $4,326 per annum), Western Australia ($438 to $1,752 per annum) and Australian Capital Territory ($3,808).

Licence fees for hazardous waste storage activities vary from $383 to $7,391 across jurisdictions. The array of different fees precludes a broad compar son of licence fees.

Table C5 Hazardous waste storage licence fees (per annum)

Jurisdiction	Licence type	Threshold	Fee
New South Wales	*Hazardous waste*	*More than 5 t*	$3,808
	Used lead acid batteries	*More than 60 t*	$3,808
	Waste tyres	*More than 500 tyres or 5 t*	$1,428
Victoria	*Prescribed industrial waste facility (including used lead acid batteries and used tyres)*	*Less than 795 t*	$1,083
		More than 795 t ($1.36/t up to max fee of $4,326)	
Queensland	*Regulated waste storage (other than tyres)*		$4,967
	Used lead acid batteries	*Licence not required if storing less than 3000 used lead acid batteries (up to 45 t)*	$4,967
Western Australia	*Used tyre storage*	*More than 100 tyres*	$584
	Liquid waste facility	*Less than 100 t/year*	$438
		100 – 10,000 t/year	$876
		10,000 –100,000 t/year	$1,314
		More than 100,000 t/year	$1,752
	Solid waste facility	*Less than 100 t/year*	$438
		100 – 10,000 t/year	$876
		10,000 – 100,000 t/year	$1,314
		More than 100,000 t/year	$1,752

Jurisdiction	Licence type	Threshold	Fee
	Solid waste depot (including depot storage of used lead acid batteries)	*500 – 5,000 t/year*	$234
		More than 5,000 t/year	$1,168
South Australia	*Used lead acid batteries*	*More than 500 waste ULABs /year*	$640
	Used tyres	*More than 500 tyres stored*	Unpublished
	Waste depot (liquid waste)	*Less than 1,000 kL/year*	$1,280
		1,000 – 2,000 kL/year	$1,920
		2,000 – 5,000 kL/year	$2,560
		5,000 – 20,000 kL/year	$5,120
		20,000 – 50,000 kL/year	$7,680
		50,000 – 100,000 kL/year	$12,800
		More than 100,000 kL/year	$32,000
	Waste depot (solid), transfer station, materials recovery facility, recycling depot	*Less than 1,000 t/year*	$640
		1,000 – 2,000 t/year	$1,280
		2,000 – 5,000 t/year	$1,920
		5,000 – 20,000 t/year	$2,560
		20,000 – 50,000 t/year	$5,120
		50,000 – 100,000 t/year	$7,680
		100,000 – 200,000 t/year	$12,800
		More than 200,000 t/year	$32,000
Tasmania	*N/A*	*N/A*	N/A
Australian Capital Territory	*Facility for storage and dismantling of electronic waste*		$3,808
	Waste receiving facility	*More than 30,000 t /year*	$3,808
	Storage of contaminated soil	*More than 10,000 m^3*	$7,391
Northern Territory	*Listed waste activity (including used lead acid batteries and used tyres)*		$383
	Waste handled fee	*$0.0575/t or kL*	

Source: Various and GHD analysis

Waste levy

Various jurisdictional legislation and regulation requires waste facilities to pay a waste levy for each tonne of hazardous waste received at the facility, with the objective of reducing landfilling and encouraging resource recovery.

Currently there are no jurisdictional levies charged in Tasmania, Northern Territory, and Queensland. Whilst no 'levy' per se exists in the Australian Capital Territory, the Government sets the landfill fees and charges for wastes.[56] In some jurisdictions environmental legislation provides for a levy rebate (or deduction from contribution) for an approved purpose such as recovery or recycling of hazardous waste, with rates dependent on the relevant EPA.

Of the jurisdictions that charge a waste levy, Western Australia recently announced increases to its landfill levy, broadly aligning rates with Category C wastes in Victoria, whilst still being approximately half of the metropolitan rate in New South Wales.

Table C6 Waste levy fees

Jurisdiction		Fee
New South Wales	Metropolitan levy area (per tonne)	$121
	Regional levy area (per tonne)	$65
	Trackable liquid waste	$70
Victoria*	Category A*	*Prohibited from landfill*
	Category B* (per tonne)	$250
	Category C* (per tonne)	$70
	Packaged waste asbestos (per tonne)	$30
Western Australia**	Putrescible rate/tonne	$55
	Approx. inert rate per tonne	$40
	Inert rate (per m^3)	$60
South Australia	Hazardous waste	*Prohibited from landfill (unless treated)*
	Solid waste non-metropolitan (per tonne)	$26
	Solid waste metropolitan (per tonne)	$52
	Liquid waste (per kilolitre)	$24
Australian Capital Territory	Asbestos less than 0.25 tonne	$38
	Asbestos greater than 0.25 tonne (per tonne)	$152
	Waste burial less than 0.5 tonne (e.g. animal processing wastes, sewage ash or grit, asbestos, hydrocarbons)	$85
	Waste burial greater than 0.5 tonne (e.g. animal processing wastes, sewage ash or grit, asbestos, hydrocarbons) (per tonne)	$170
	Commercial and industrial waste less than 0.25 tonne***	$34
	Commercial and industrial waste greater than 0.25 tonne (per tonne)***	$135

Note:

*Category A is highest hazard and must be treated. Category B includes wastes from manufacturing industries and contaminated soils. Category C includes wastes which pose a 'low hazard' from manufacturing industries and contaminated soils. **Only Class 3 and 4 landfills can dispose of hazardous waste in Western Australia.
*** The disposal of regulated waste, as defined in the Environment Protection Act 1997 is subject to special licensing or permit arrangements issued by the Environment Protection Authority and in many instances may not be disposed of at landfill.

[56] Department of the Environment (2013)

Appendix D – Regulatory frameworks and agencies

Table D1 TDG jurisdictional administration

Jurisdiction	Activity	Administration	Implemented frameworks
New South Wales	Transport	New South Wales EPA *(Transport-related matters)*	*Dangerous Goods (Road and Rail Transport) Act 2008* *Dangerous Goods (Road and Rail Transport) Regulation 2014*
	Storage	WorkCover New South Wales *(Premises-based activities)*	*Work Health and Safety Act 2011* *Work Health and Safety Regulation 2011*
Victoria	Transport	WorkSafe Victoria	*Dangerous Goods (Transport by Road or Rail) Regulations 2008*
	Storage		*Dangerous Goods Act 1985* *Dangerous Goods (Storage and Handling) Regulations 2012*
Queensland	Transport	Department of Transport and Main Roads	*Transport Operations (Road Use Management) Act 1995* *Transport Operations (Road Use Management - Dangerous Goods) Regulation 2008*
	Storage	WorkCover Queensland (overseen by Department of Justice and Attorney-General)	*Work Health and Safety Act 2011* *Work Health and Safety Regulation 2011*
Western Australia	Transport	Department of Mines and Petroleum	*Dangerous Goods Safety Act 2004* *Dangerous Goods Safety (Road and Rail Transport of Non-Explosives) Regulations 2007*
	Storage		*Dangerous Goods Safety Act 2004* *Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007*
South Australia	Transport	SafeWork South Australia	*Dangerous Substances (Dangerous Goods Transport) Regulations 2008*
	Storage		*Dangerous Substances Act 1979* *Dangerous Substances Regulations 2002*
Tasmania	Transport	WorkSafe Tasmania	*Dangerous Goods (Road and Rail Transport) Act 2010* *Dangerous Goods (Road and Rail Transport) Regulations 2010*
	Storage		*Dangerous Substances (Safe Handling) Act 2005* *Dangerous Substances (Safe Handling) Regulations 2009*
Australian Capital Territory	Transport	WorkSafe Australian Capital Territory	*Dangerous Goods (Road Transport) Act 2009* *Dangerous Goods (Road Transport) Regulation 2010*
	Storage		*Dangerous Substances Act 2004* *Dangerous Substances (General) Regulation 2004*
Northern Territory	Transport	Northern Territory WorkSafe	*Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act 2010* *Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Regulations 2010*

Jurisdiction	Activity	Administration	Implemented frameworks
	Storage		*Dangerous Goods Act 2009* *Dangerous Goods Regulations 2014*

Table D2 Hazardous waste jurisdictional administration

Jurisdiction	Administration	Implemented frameworks
New South Wales	New South Wales EPA	*Protection of the Environment Operations Act 1997* *Protection of the Environment Operations (Waste) Regulation 2014*
Victoria	EPA Victoria	*Environment Protection Act 1970* *Environment Protection (Industrial Waste Resource) Regulations 2009* *Environment Protection (Scheduled Premises and Exemptions) Regulations 2007* *Waste Management Policy (Movement of Controlled Waste between States and Territories)* *Waste Management Policy (Storage of Waste Tyres)*
Queensland	Department of Environment and Heritage Protection	*Environmental Protection Act 1994* *Environmental Protection Regulation 2008*
Western Australia	Department of Environment Regulation	*Environmental Protection (Controlled Waste) Regulations 2004* *Environmental Protection Act 1986* *Environmental Protection Regulations 1987*
South Australia	EPA South Australia	*Environment Protection Act 1993* *Environment Protection (Movement of Controlled Waste) Policy 2014*
Tasmania	EPA Tasmania	*Environmental Management and Pollution Control Act 1994 (EMPCA)* *Environmental Management and Pollution Control (Waste Management) Regulations 2010* *Environmental Management and Pollution Control (Controlled Waste Tracking) Regulations 2010*
Australian Capital Territory	EPA Australian Capital Territory	*Environment Protection Act 1997* *Environment Protection Regulations 2005*
Northern Territory	Northern Territory EPA	*Waste Management and Pollution Control Act 1994* *Waste Management Pollution Control (Administration) Regulations 1999*

Source ABRI (2012b) and GHD analysis

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