

**THE TRANSPORTATION OF HAZARDOUS WASTE IN SOUTH AFRICA – A
COMPARATIVE ANALYSIS OF SOUTH AFRICAN, BRITISH, AMERICAN
AND AUSTRALIAN LEGISLATION.**

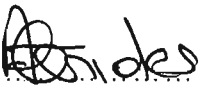
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Submitted as the dissertation component (which counts for at least fifty percent of the degree) in partial fulfilment of the requirements for the degree of Master of Laws in the School of Law, University of Natal, Pietermaritzburg, 1998.

DECLARATION

I hereby declare that this dissertation, which is submitted in partial fulfilment for the requirements of the Master of Laws Degree in the School of Law University of Natal, Pietermaritzburg, is my own unaided work, except where otherwise stated.

No part of this dissertation has been previously submitted for a degree to any other university.


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Angela Athienides

Pietermaritzburg, January, 1998.

To Basil and Little Eve
Thanks for everything.

Abstract

This dissertation examines the regulatory measures/legislation governing the road transportation of hazardous waste in South Africa, the United States, Australia and Britain. The document compares the legislation/regulatory measures that exist in South Africa to those that exist in the United States, Australia and Britain. In so doing the document highlights the shortcomings that presently exist in the legislation/regulatory measures governing the road transportation of hazardous waste in South Africa as well as the shortcomings that exist in the legislation/regulatory measures governing the road transportation of hazardous waste in the United States, Australia and Britain and which must therefore be avoided. The document concludes by suggesting improvements which can and ought to be made to the South African law governing the road transportation of hazardous waste.

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Chapter One

Introduction

Hazardous waste may be the single most significant health issue of this decade.¹ It has the potential to threaten human and environmental health. Hazardous waste can cause immediate, short-term, public health problems as well as long term environmental pollution. Despite this however, hazardous waste has become a major and unavoidable side effect of industrial civilization.² It is a result of society's advanced technology and pursuit of complex lifestyles.³ Every process for producing useful things – food, clothing, equipment, drugs and housing – also produces waste-materials that have served their purpose. Although most of these wastes are harmless, a small percentage are extremely dangerous.⁴ Moreover, as the demand for modern materials and functions increase, the volume and complexity of hazardous waste (generated in the process) inevitably increase.

Finding some way to neutralize the menace posed by hazardous wastes has thus become one of the major challenges in making industrialization safe for human life. Hazardous waste needs to be managed appropriately so as to minimise any danger to the public or the environment. The term “managed” referred to encompasses the treatment, storage, disposal and transportation of hazardous waste.

To achieve this every industrialized country needs to have efficient and effective controls over the management of hazardous waste.

‘Considerable attention has been focused on what constitutes a “hazardous waste”’. National systems differ both in the methods used for defining wastes and in the type of

¹ Samuel S Epstein M.D., O Brown and Carl Pope Hazardous Waste in America (1982) at 3.

² Epstein op cit. n 1 at 6.

³ Epstein op cit. n 1 at 206.

⁴ Epstein op cit. n 1 at 2.

waste included. These differences arise from the variations in the institutional and legal framework of different countries.’⁵

‘Internationally, many different “legal” definitions of hazardous waste exist. In most cases the definitions are relatively vague and mostly refer to a list of compounds and/or types of waste concerned. Some of the main identification criteria for such lists are:

- Type of hazard involved (flammability, corrosivity, toxicity, reactivity);
- The generic category of the products involved (e.g. solvents, medicines);
- Technological origins (i.e. oil refining, electroplating);
- Presence of a specified substance or group of substances (e.g. PCB, dioxin, leadcompounds).’⁶

For the purpose of an introduction however, the following definition is suitable:

Hazardous waste may be defined as: -

Solid or liquid waste, or a combination thereof, that, because of its quantity, concentration, or physical/chemical or infectious characteristics may-

- (i) cause or significantly contribute to an increase in mortality or an increase in serious irreversible illness; or
- (ii) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.⁷

Of increasing concern with regards to hazardous waste is its transportation, in particular the road transportation of hazardous waste. The road transportation of hazardous waste may be defined as the conveyance of hazardous waste on road, usually by means of a

⁵ Department of Water Affairs and Forestry *Minimum Requirements for the Handling and Disposal of Hazardous Wastes* Waste Management Series at 86.

⁶ Ibid.

⁷ EW Miller and RM Miller *Contemporary World Issues, Environmental Hazards: Toxic Waste and Hazardous Materials* (1994) at 4.

road tanker. For the sake of convenience the term transportation referred to throughout the document will refer to the road transportation of hazardous waste. The transportation of waste to disposal sites and from facilities generating or processing waste poses hazards. It has been stated that the odds of hazardous waste being released during transportation are as great as during its treatment, storage, and disposal.⁸ In fact it is submitted that transportation may even be considered a more dangerous activity. Moving hazardous waste around over great distances increases the chances of some environmental damage being caused.⁹ Moreover, accidents are an ever present possibility.

Ensuring the safe transportation of hazardous waste is thus a complex activity.¹⁰ Stringent controls therefore need to be enforced as an accidental release of hazardous waste may pose a serious and detrimental threat to human safety and environmental health. Effective control over the handling and transport of hazardous waste is thus of paramount importance for the maintenance of public health and environmental protection.

‘South Africa produces 300 million tons of waste per year, of which 2 million tons fall under the category of toxic or hazardous waste.’¹¹ Despite this however, there is as yet only incomplete legislation and policy relating to waste. Furthermore what there is does not fully address the question of hazardous waste. There is currently no legislation fully regulating hazardous waste in South Africa. In fact at least 32 Acts of Parliament, two Provincial Ordinances and numerous local authority by-laws and regulations attempt to do so. Moreover responsibility for the administration of the numerous Acts is diffused through at least 13 different government departments.¹²

⁸ Benjamin A Goldman, James A Hulme, Cameron Johnson, Council of Economic Priorities *Hazardous Waste Management Reducing the Risk* (1986) at 246.

⁹ Rosiland Malcolm *A Guide to Environmental Law* (1994) at 214.

¹⁰ Charles A Wentz *Hazardous Waste Management* (1989) at 248.

¹¹ ‘Hazardous Waste: A Highly Specialised Undertaking’ (Nov/Dec 1992) 17:11 *IMIESA* 13 at 13.

¹² RG Noble (Ed) *Hazardous Waste in South Africa* Volume 4: *Legislative Options* (1992) Department of Environment Affairs CSIR: Pretoria at 15.

The situation surrounding the transportation of hazardous waste in South Africa is equally unsatisfactory. 'There is insufficient control over the transport of hazardous waste.'¹³ At least 10 different Acts administer the transportation of hazardous substances in South Africa. Moreover the numerous Acts do little or nothing to ensure the safe transportation of hazardous waste.

In a survey conducted by the Pietermaritzburg Fire and Emergency Services over a 24 hour period in May 1996, (i.e. 08:00hrs on Thursday 09 May 1996 – 08:00hrs on Friday 10 May 1996), at the Marianhill Toll Plaza on the N3 freeway from Pietermaritzburg to Durban and Johannesburg, it was ascertained that the total number of road tankers transporting hazardous materials on the N3 freeway amounted to 290. In addition, it was ascertained that the total quantity of hazardous materials transported on the N3 over this 24 hour period amounted to 5 160 679 litres.¹⁴

The document has examined the survey conducted by the Pietermaritzburg Fire and Emergency Services, even though the survey only concerned itself with the number of road tankers and quantity of hazardous materials being transported on the N3 freeway, due to the fact that at the time of writing no figures are available on the actual number of road tankers and quantity of hazardous waste being transported. However in this regard it is important to note that all hazardous wastes may be classified as hazardous materials, even though only a small fraction of hazardous materials being transported are hazardous wastes.¹⁵ This being the case, it is submitted that the survey and the figures ascertained nevertheless serve to highlight the tremendous amount of hazardous materials (which may include hazardous waste) that are being transported on just one of South Africa's highways. The survey further serves to highlight the potential risk involved in transporting such enormous quantities of hazardous materials (which may include hazardous waste). The transportation of 5 160 679 litres of hazardous materials (which

¹³ Fraser Alexander Group, Institute of Waste Management and Southern African Nature Foundation *Suggested Guidelines for the Transport and Disposal of Hazardous Waste. A Self Regulatory Approach* (1992) at 3.

¹⁴ Mr SN Halsted, Senior Divisional Officer of the Pietermaritzburg Fire and Emergency Services, Personal Conversation 16 November 1998.

may include hazardous waste) in just one day, inevitably increases the chance of some environmental damage being caused. In addition, it is important to note that these figures are expected to have increased considerably since 1996.¹⁶

Of increasing concern however, in addition to the tremendous quantities of hazardous waste being transported on our roads, is the spate of accidents/incidents and spills, which have occurred, in recent months, involving vehicles transporting hazardous materials. I.e. on 2 March 1998, a tanker transporting ammonium nitrate fertilizer overturned outside Salsolburg, Free State, seriously injuring a mother and child; on 4 March 1998, seven drums of dichlorophenol fell off a truck causing a chemical spill on the N12 freeway close to Boksburg, Gauteng; on 10 March 1998, a five kilometer spill caused the northbound M1 freeway between Southgate and Xavier Road off-ramps to be closed down.¹⁷ Furthermore, between the period of 1 July 1997 to 31 June 1998, 16 hazardous chemical incidents were reported to have occurred in the Midlands on the N3 Summerveld - Nottingham Road area; 8 incidents were reported to have occurred in the Berg on the N3 Nottingham Road – Van Reenen area; 6 incidents were reported to have occurred on the N2 between Brookes Nek and Kingsburgh; 4 incidents were reported to have occurred on the N2 between Ballito and Piet Retief and 1 incident was reported to have occurred on the N11 between Ladysmith and Volksrust.¹⁸

In addition, it is important to note that each accident/incident or spill involving hazardous waste carries with it enormous costs, both direct and indirect. Direct costs are those costs, which are incurred by the various organizations involved in dealing with the incident, i.e. in cleaning up the incident. Indirect costs are those costs, which are incurred by the motorists and trucking companies as a result of the incident. I.e. additional vehicle running costs and personal time costs incurred as a result of the closure of a road or freeway.

¹⁵ National Research Council, United States Transportation Board *Transportation of Hazardous Materials* (1986) at 11.

¹⁶ Per MR SN Halsted, op cit. n 14.

¹⁷ Chemical Transportation, Defusing those "Time-Bomb Trucks" (June 1998) *Chemical World* 10 at 10.

¹⁸ Tracy Milham, Stanway Edwards Ngomane Associates (Pty) Ltd, Personal Correspondence 25 November 1998.

On Wednesday 1 May 1996, at 03:17 hours, a truck carrying L.P. Gas heading north on the N3 lost control and overturned at the Sterkspruit River Bridge (km 7.0 on the N3/2).¹⁹ Due to the danger of an explosion, both carriageways on the N3 were closed to traffic from 04:35 that morning until late the following afternoon of Thursday 2 May 1996.²⁰ ‘The impact of the incident was immense. Apart from clearing the incident, there were also repairs to the road, evacuations of the area surrounding the incident as well as monitoring of traffic which was deviated onto alternative routes.’²¹ In addition the Regional Engineer of the Department of Transport Pietermaritzburg, requested VKE Engineers to put together an estimate of the costs of the incident. Subsequently, VKE Engineers produced a report in which it was estimated that the total direct costs, i.e. the costs incurred by various organizations, amongst others Drizit, the Durban Fire and Emergency Services, and the Road Freight Association, in cleaning up the incident amounted to R491 291.²² The report further estimated the total indirect costs incurred by motorists and trucking companies as a result of the closure of the N3, to be R3 807 400.²³ Moreover, the total man-hours lost for drivers on the alternative routes was estimated in the report to be 60 200.²⁴

It is submitted that the conveyance of enormous quantities of hazardous waste on South Africa’s roads greatly increases the risk of harm occurring to the environment and to public health. Moreover, the costs involved in dealing with and controlling an incident or spill should one occur are tremendous. These costs affect not only the organizations involved in the clean up of an incident but also the State and public at large, i.e. the longer a freeway is closed the greater the costs to the economy. As such efficient and effective controls need to be in force. The current plethora of legislation/regulatory measures that exist in South Africa however appear to be inadequate. Far too many accidents/incidents have occurred on our roads in recent months. ‘These

¹⁹ VKE Engineers *Report on the Cost Implications of the Incident on N3/2 at km 7 on 1 May 1996* at 6.

²⁰ VKE Engineers op cit. n 19 at 7.

²¹ VKE Engineers op cit. n 19 at 13.

²² VKE Engineers *Report of the Cost Implications of the Incident on N3/2 at km 7 on 1 May 1996* at 9.

²³ VKE Engineers op cit. n 22 at 10.

²⁴ Ibid.

accidents/incidents serve to highlight that something terribly wrong is going on out there'.²⁵

The lack of effective control over the movement of hazardous waste on South Africa's congested roads proves a very real threat to human life and the environment. An urgent need therefore exists for more efficient and effective controls than are currently being applied. It is important to note that strict legislation has been in force in Europe and the United States for some considerable time.²⁶ As such South Africa is in a fortunate position in that she may take the best components of all the hazardous waste management systems in operation overseas and combine them to institute a system which is most suitable to her local conditions.²⁷

The following document will thus concern itself with an examination of the legislation/regulatory measures that exist in the United States, Britain, Australia and South Africa. The prime purpose is to compare the control measures that exist in South Africa to those which exist in the United States, Britain and Australia. In doing so, the document will identify certain control measures which could greatly improve the South African law governing the transportation of hazardous waste. The document will then turn to examine the shortcomings that presently exist in the legislation/regulatory measures governing the transportation of hazardous waste in South African as well as the shortcomings that exist in the legislation/regulatory measures governing the transportation of hazardous waste in the United States, Britain and Australia. Finally, the document will, having identified the short comings that exist as well as the shortcomings which should be avoided (i.e. those which exist in the United States, Britain and Australia), turn to examine the improvements which can and should be made to South Africa's legislation/regulatory measures governing the transportation of hazardous waste.

²⁵ Andrew Parker 'A FleetWatch Initiative Indaba Dangerous Goods' (May 1998) *FleetWatch* 60 at 60.

²⁶ 'Transporting Hazardous Waste: What are the Issues' (Aug 1995) *Municipal Engineer Resource Supplement* 4 at 4.

²⁷ *IMIESA*, at 13.

Chapter Two

Regulatory Measures/Legislation Governing the Transportation of Hazardous Waste in South Africa

Of all the Environmental problem areas that have come into focus around the world in recent years, hazardous waste has been the slowest to develop either direction or regulatory mechanisms in South Africa.¹ There is currently no legislation fully regulating hazardous wastes in South Africa. In fact at least 32 Acts of Parliament, two Provincial Ordinances and numerous local authority by-laws attempt to do so.

The situation surrounding the transport of hazardous waste in South Africa is equally unsatisfactory. At least ten different Acts administer the transportation of hazardous substances in South Africa.

In addition to there being a plethora of legislation governing the topic of hazardous waste and its transportation, it is important to note that, until recently South Africa had no formal definition on the subject at all. I.e. none of the numerous Acts that exist contain a definition of hazardous waste.

The definition of hazardous waste, that exists in South Africa at present, thus has its origins in a 1992 CSIR Report entitled “Hazardous Waste in South Africa” – Department of Environment Affairs. RG Noble (Ed).

The report defines hazardous waste as: -

‘Any waste that directly or indirectly represents a threat to human health or the environment by introducing one or more of the following risks:

- explosive or fire;
- infection, pathogens, parasites or their vectors;
- chemical instability, reactions or corrosion;

¹ RG Noble (Ed) *Hazardous Waste in South Africa: Executive Summary* (1992) Department of Environment Affairs CSIR: Pretoria at 1.

- acute or chronic toxicity;
- cancer, mutations, tumour, or birth defects;
- ecotoxicity, or damage to ecosystems or natural resources;
- accumulation in biological food chains, persistence in the environment, or multiple effects;

so that it requires special attention and cannot be released into the environment, or be added to sewage, or be stored in a situation which is either open to air or from which leachate water could be produced.²

Of increasing concern however, in addition to the fact that South Africa has no definition of hazardous waste in any of her numerous Acts, is the fact that South Africa has in recent months experienced an alarming number of accidents involving vehicles transporting hazardous goods. These incidents serve to highlight the potential danger involved in transporting dangerous goods by road. They further serve to highlight the fact that stringent controls need to be enforced in order to limit the dangers inherent in such transportation. Countries such as the United States and Britain have enacted quite extensive legislation to govern the transport of hazardous waste³, (see chapter 3 and 5). However, whether South Africa does indeed exercise appropriate controls over the transportation of hazardous waste will now be considered. I.e. the control measures governing the transportation of hazardous waste in South Africa will now be examined.

Although the subject of hazardous waste in South Africa, is governed by a plethora of legislation, it is submitted that the most important control measures with regards to the transportation of hazardous waste are: the Road Traffic Act 29 of 1989; the Hazardous Substances Act 15 of 1973 and the National Road Traffic Act 93 of 1996.

The Road Traffic Act 29 of 1989

² RG Noble (Ed) *Hazardous Waste in South Africa* Volume 4: *Legislative Options* (1992) Department of Environment Affairs CSIR: Pretoria at 4-5.

³ Fraser Alexander Group, Institute of Waste Management and Southern African Nature Foundation *Suggested Guidelines for the Transportation and Disposal of Hazardous Waste. A Self Regulatory Approach* (1992) at 3.

The control measures offered by the Road Traffic Act with regards to the transportation of hazardous waste are as follows, a professional driving permit hazardous goods (PrDP-H) is required to be obtained by a driver. This permit authorizes the driver to drive a heavy motor vehicle conveying dangerous goods. To obtain this the driver must have in his possession a Code 14 licence for at least 2 years prior to this.⁴ In addition, a driver must not have any endorsements on his licence for at least 5 years.⁵

The Hazardous Substances Act 15 of 1973

This Act deals primarily with the control of hazardous substances and not hazardous waste per se. The Act is administered by the Department of National Health and Population Development.

It seeks to control substances “which may cause injury or ill health to or the death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature...”⁶ The Act does not define hazardous waste but rather classifies substances into various Groups. Group I and II, are substances which might by reason of their toxicity, corrosive, irritant, strongly sensitizing, flammable nature or by their generation of pressure through decomposition, heat or other means, cause injury, ill health or death to human beings.⁷ Group III substances are declared electronic products⁸, and Group IV substances consist of radioactive material.⁹

Section 29 of the Act, empowers the Minister to make regulations authorising, regulating controlling, restricting or prohibiting inter alia, the importation, storage, transportation or dumping and other disposal of any grouped hazardous substance or class of grouped

⁴ Andrew Parker ‘A FleetWatch Initiative, Indaba Dangerous Goods’ (May 1998) *FleetWatch* 60 at 61.

⁵ Ibid.

⁶ Hazardous Substances Act 15 of 1973, Preamble.

⁷ Hazardous Substances Act 15 of 1973, Section 2(1)(a)

⁸ Hazardous Substances Act 15 of 1973, Section 2(1)(b)

⁹ Section 1

hazardous substance¹⁰, as well as aspects governing the manufacture, packaging, storage and disposal of hazardous substances.¹¹

Despite the wide range of issues the Minister may promulgate regulations on, regulations have only thus far been made in respect of returnable and non-returnable containers which once contained hazardous substances¹² and the transportation of hazardous substances.¹³

The regulations governing the conveyance of hazardous substances (which may include hazardous waste)¹⁴ came into force on 10 January 1987, in order to control the carrying of dangerous goods by road involving the use of road tankers and tank containers having a capacity or 500 litres or more.

The regulations require such vehicles to display appropriate labeling in order to provide emergency services with information on how to handle the various types of dangerous substances being carried in the event of an accident. I.e. Hazard Chemicals Labels. Appropriate labeling in terms of the regulations consists of a hazard warning panel.¹⁵ This is a rectangular panel, which must be displayed on the vehicle. Three such panels must be displayed, one at the rear and one on each side as near to the front of the vehicle as possible. The regulations stipulate the type of panels required for single loads¹⁶ and multi-loads¹⁷ as well as the colour of the hazard warning panel.¹⁸

In addition, the regulations provide that certain information should be displayed in the hazard warning panels for both single loads¹⁹ and multi-loads²⁰

¹⁰ Section 29(i)(a)

¹¹ Section 29(i)(b)

¹² GN 453 March 25 1997, regulation 10

¹³ GN R 73 GG 9556 11 January 1985.

¹⁴ Ibid.

¹⁵ GN R 73 GG 9556 11 January 1985, regulations 3,4,5,6,7 and 8

¹⁶ A single load is defined as a load consisting of only one grouped hazardous substance (regulation 1(xvi))

¹⁷ Multi-load is defined as a load consisting of – (a) two or more grouped hazardous substances; (b) two or more mixtures or hazardous substances; or (c) any combination of (a) and (b); in the same or separate compartments or tanks (whether or not a substance which is not a grouped hazardous substance is being conveyed at the same time) (regulation 1(xi)).

¹⁸ GN R 73 GG 9556 11 January 1985, Annexure 4

¹⁹ GN R 73 GG 9556 11 January 1985, regulation 3

The information required by the regulations is: -

- (1) An appropriate action code – this code provides information about the action and equipment required in the event of an accident. It consists of a number from 1-4 followed by a letter.²¹ The number indicates the equipment suitable for fire-fighting and where appropriate for dispersing spillages i.e. ‘1’ = water jets, ‘2’ = water fog, ‘3’ = foam, ‘4’ = dry agent. The letter signifies the appropriate precautions in the event of a fire or spillage²²;
- (2) Substance identification number (SIN). This is a United Nations identification number allocated to a substance. Annexure 1 contains the substance identification numbers of substances;
- (3) An applicable hazard warning sign for that class of substance. The hazard warning signs to be used on hazard warning panels are set out in Annexure 3 part 2;
- (4) The telephone number or other approved text indicating where specialist advice can be obtained at all times.

Furthermore the regulations require the conveyor²³ of group hazardous substances to ensure that the driver²⁴ is in possession of a transport emergency card (Tremcard)²⁵; a scale card²⁶; a medical and driver training certificate²⁷ and to complete and forward an accident report²⁸ to the Department of Transport, within 30 days, in the event that a road tanker transporting a grouped hazardous substance is involved in an accident, resulting in spillage, fire or injury.²⁹ Similar obligations are imposed on the driver of a road tanker.³⁰

²⁰ GN R 73 GG 9556 11 January 1985, regulation 5

²¹ Annexure 1 part 2 and 3, Annexure 2

²² Ibid.

²³ A conveyor is defined in the regulations as a person, organisation or enterprise engaged in or offering to engage in transportation of a grouped hazardous substance by road, (regulation 1(iv)).

²⁴ Defined in the regulations as a person who drives as well as generally operates a road tanker, (regulation 1(v)).

²⁵ GN R 73 GG 9556 11 January 1985, regulation 10(iii)(bb)

²⁶ Regulation 10(iii)(cc)

²⁷ Regulation 10(iii)(dd)

²⁸ Contained in Annexure 6

²⁹ Regulation 10(b)

³⁰ Regulation 11

The regulations however, are deficient in a number of ways. I.e. they do not define a Tremcard or scale card, they only regulate the labeling of road tankers³¹ and thus merely require that drivers be aware of and have access to information regarding dangerous substances.³² They are restricted in that they only apply to some 300 chemicals.³³ They only apply to road tankers in excess of 500 litres thereby excluding smaller road tankers from any form of regulation what so ever as well as transporters of packaged drummed goods.³⁴ Lastly, there is very little policing or enforcement of the regulations, as the Department of Health has no 'on- the-road-inspectors'.³⁵

In an attempt to remedy the deficiencies that exist, 'the South African Bureau of Standards (SABS) was requested to develop a set of criteria to be used as a basis for effective regulation of the transportation of dangerous substances.'³⁶

The SABS subsequently produced codes of practice designed to address the shortcomings in the present legislation and to set into place a framework enabling authorities to affect a greater measure of safety and efficiency in the field of dangerous transportation.³⁷

The first of these, known as Code SABS 0228³⁸, addresses the classification and identification of dangerous goods. The SABS 0228 classifies approximately 3000 substances, as opposed to the current classification system of the Hazardous Substances Act, which only identifies some 700 substances. In addition the SABS 0228, gives a full description of the various types of containers which can be used for the packaging of hazardous substances.³⁹

³¹ FJ Craffert *Infrastructure and Procedures for Road Transportation of Dangerous Materials* (1994) Department of Transport Chief Directorate (National Roads) Pretoria at 4.

³² 'Chemical Transportation, "Defusing those Time Bomb Trucks"' (June 1998) *Chemical World* 10 at 10

³³ RF Fuggle and MA Rabie (Eds) *Environmental Management in South Africa* (1994) at 5.

³⁴ Fuggle and Rabie op cit. n 33 at 33.

³⁵ Jack Webster 'Placing the Regs where they belong' (Dec 1997) *FleetWatch* 67 at 67.

³⁶ Webster op cit. n 35 at 33.

³⁷ Ibid.

³⁸ SABS 0228:1996

³⁹ Department of Water Affairs and Forestry *Minimum Requirements for the Handling and Disposal of Hazardous Waste* (1994) Waste Management Series at 77.

Code SABS 0229⁴⁰ covers the packaging of dangerous goods for both road and rail transportation in Southern Africa.

SABS 1518⁴¹, stipulates the design requirements for tankers intended to transport dangerous substances on public roads.

SABS 0230⁴² contains provisions for routine inspections and testing of road vehicles.

SABS 0231⁴³ establishes rules and procedures for the safe operation and handling of road vehicles transporting dangerous goods. It outlines the duties of qualified persons⁴⁴ regarding safety aspects of loading and off-loading. SABS 0231 also requires the operator⁴⁵ to plot the intended transportation routes and to inform the relevant emergency responders of the intention to transport dangerous substances along those routes. In addition, SABS 0231 makes reference to a manifest and a transport emergency card (Tremcard) and offers a definition for each. I.e. a manifest is a document that identifies, by name and substance identification number the material(s) being transported, and also the quantity of each of the materials carried in the cargo.⁴⁶ A Tremcard is a document that lists the hazards and emergency information for a material that is being conveyed, for use by the driver during an incident, or by the emergency services if required.⁴⁷ SABS 0231 further requires the consignor⁴⁸ to supply the appropriate Tremcard(s) and manifest(s)⁴⁹ and requires the driver to be in possession of such documentation for the

⁴⁰ SABS 0229:1997

⁴¹ SABS 1518: 1996

⁴² SABS 0230:1997

⁴³ SABS 0231:1997

⁴⁴ Defined as, trained persons nominated by the responsible parties to control any specific task, (SABS 0231: 1997, 3.16).

⁴⁵ Defined as, the person responsible for the use of a motor vehicle of any class contemplated in chapter v of the Road Traffic Act (29 of 1989) and who has been registered as the operator of such vehicle, (SABS 0231:1997, 3.13).

⁴⁶ SABS 0231:1997, 3.12

⁴⁷ SABS 0231:1997, 3.19

⁴⁸ Defined as the person who offers dangerous goods for transport, (SABS 0231:1997, 3.3).

⁴⁹ SABS 0231:1997, 5.3.4

duration of the trip.⁵⁰ Lastly, SABS 0231 requires the driver to be able to interpret and implement the instructions on the Tremcard; to have received general training in the transportation of dangerous goods; to have received theoretical and practical training relevant to the type of vehicle and dangerous goods to which he will be assigned and to hold a valid medical certificate for fitness to drive the dangerous goods carriers.⁵¹

SABS 0232⁵² covers the emergency response information systems required. Annexure C of this Code lists the quantities of dangerous goods which are exempt from control.

Lastly, SABS 0252/1⁵³, covers the transportation of any goods classified as dangerous in excess of the exempt quantities referred to in Annexure C of SABS 0232 above, thus attempting to do away with the 500 litre minimum requirement.

It is important to note that despite the numerous standards and requirements developed by the SABS, these requirements and standards are not supported by a legal requirement for compliance.⁵⁴ I.e. the standards and requirements have not been taken into legislation.⁵⁵

The National Road Traffic Act 93 of 1996 however, attempts to remedy this obstacle. As such the document will now turn to examine the National Road Traffic Act.

The National Road Traffic Act 93 of 1996

Section 75 of the National Road Traffic Act empowers the Minister of Transport to promulgate regulations regarding dangerous goods, in particular, the classification of dangerous goods; the powers and duties of traffic officers in respect of the transportation of dangerous goods; the manner in and conditions on which specified dangerous goods may be transported and the dangerous goods which may not be transported.⁵⁶

⁵⁰ SABS 0231;1997, 5.2.3(d)

⁵¹ SABS 0231:1997,5.2.2

⁵² SABS 0232:1995

⁵³ SABS 0252/1:1994

⁵⁴ Jack Webster at 67.

⁵⁵ FJ Craffert at 81

⁵⁶ National Road Traffic Act 93 of 1996, Section 75(h)(i)-(iv)

Under this authority, the Minister has issued a set of draft National Road Traffic Regulations.⁵⁷ Although these regulations have not as yet been finalised, they do offer solutions to the present shortcomings of the current regulations.

The Draft National Road Traffic Regulations, give legal status to the relevant Codes of Practice published by the SABS. I.e. the regulations detail the list of Codes of Practice which provide all the technical information.⁵⁸

In the draft regulations, a similar system to the Hazchem labels of the Hazardous Substances Regulations is envisaged and is to be called "Emergency Action Response System".⁵⁹

Moreover, similar to the Hazardous Substances Regulations, the draft regulations require the driver of a vehicle conveying dangerous goods to have in his possession a Tremcard⁶⁰, however the Tremcard is now defined.⁶¹ In addition, the regulations require the driver of such vehicle to carry a manifest as required in terms of the SABS Codes of Practice⁶²; a valid medical certificate prescribed in the SABS Codes of Practice⁶³; a professional driving permit, if applicable⁶⁴; and a document containing a clear indication of the route to be followed by the vehicle planned in accordance with Code of Practice SABS 0231.

The regulations further require the driver of a vehicle conveying dangerous goods to undergo training and require the syllabus for the training of drivers to contain at least:

- (a) the interpretation and implementation of the instructions on the Tremcard;

⁵⁷ GN 1520 GG 18383 27 October 1997

⁵⁸ National Road Traffic Regulations, regulation 268

⁵⁹ Regulation 268

⁶⁰ Regulation 276(1)

⁶¹ Regulation 268

⁶² Regulation 276(1)

⁶³ Regulation 276(2)(a)

⁶⁴ Regulation 276(2)(b)

- (b) theoretical and practical training relevant to the type of vehicle and class of dangerous goods;
- (c) detailed instruction on the emergency action response system and procedures in place for the specific kind of dangerous goods to be transported by the driver concerned and practical training on the emergency action to be taken for the various incidents which may occur with regard to the dangerous goods concerned.;
- (d) duties of the driver before proceeding on a route concerning, inter alia, the condition of the vehicle, instructions regarding the route to be taken, warning signs and warning devices to be displayed or stored in the vehicle, the correct type and number of fire extinguishers to be fitted to the vehicle, protective clothing to be used;
- (e) behaviour expected of the driver on the route, inter alia, planning of stops for deliveries or checking of the tyres and vehicles, and procedure to be followed in the event of stops, periods of driving allowed, action to be taken in the event of an incident occurring; and
- (f) procedure to be followed by the driver on reaching his or her destination.⁶⁵

Once the drivers have successfully completed the training, a certificate is issued to them.⁶⁶ This certificate is also required to be carried by the driver when transporting dangerous goods,⁶⁷ in addition that is, to the medical certificate, manifest etc referred to above.

⁶⁵ Regulation 275

⁶⁶ Regulation 275(5)

⁶⁷ Regulation 276(2)©

Lastly, the Draft National Road Traffic Regulations provide for the appointment of Dangerous Goods Inspectors and define their duties and functions.⁶⁸ In this respect the regulations could be seen as attempting to keep tight controls over the transportation of dangerous goods.

Having examined the Draft National Road Traffic Regulations, it becomes clear that they do in actual fact attempt to remedy many of the short comings that exist with the present controls. 'They emphasize the importance of using SABS Codes of Practice to deal with technical matters in preference to cluttering up the regulations.'⁶⁹ However the regulations are, as their name suggests merely draft regulations.

In conclusion, it is submitted that despite considerable progress being made to the regulatory measures governing the transportation of hazardous waste in South Africa, certain shortcomings continue to exist. As such the document will now proceed to examine the legislation/regulatory measures governing the transportation of hazardous waste in the United States, Australia and Britain in hope of perhaps identifying certain control measures which could greatly improve the South African law governing the transportation of hazardous waste.

⁶⁸ Regulations 277 and 278

⁶⁹ Jack Webster at 72.

Chapter Three

Regulatory Measures/Legislation Governing the Transportation of Hazardous Waste in the United States

The United States is perceived as being a progressive country in its Environmental Legislation. It is one of the leading countries as far as environmental protection is concerned. The United States has enacted extensive legislation governing the transportation of hazardous waste, viz., the Resource Conservation and Recovery Act of 1976 and the Hazardous Materials Transportation Act of 1974.

The transportation of hazardous materials and the risks involved with such activities was identified as a serious problem in the United States.¹ As such, in 1975, Congress enacted the Hazardous Materials Transportation Act, the prime purpose being to increase public safety and to regulate the movements of various types of hazardous materials. The Hazardous Materials Transportation Act is administered by the Department of Transportation and empowers the Secretary of Transportation “to protect the Nation adequately against the risks to life and property, which are inherent in the transportation of hazardous materials in commerce.”²

Enacted in 1976, the Resource Conservation and Recovery Act was a response to growing public awareness of serious problems related to the disposal of hazardous waste.³

The Act provides the basis for the Nations handling of its solid and hazardous wastes. It is divided into 10 subtitles. Subtitles A, B, E, F, G, and H provide the framework for general provisions. Subtitles C, D, I, and J outline the four programmes that make up what is collectively known as the Resource Conservation and Recovery Act, i.e.

¹ National Research Council, United States Transportation Research Board *Transportation of Hazardous Materials* (1986) at 1.

² The Hazardous Materials Transportation Act of 1975, section 102.

³ Rodger W Findley and Daniel A Farber *Environmental Law in a Nutshell* 4th Edition (1996) at 202.

management of hazardous waste, solid waste, underground storage tanks and medical waste.⁴

In addition, the Act has mandated the Environmental Protection Agency, (EPA), to develop a comprehensive set of regulations to provide a legal mechanism for its implementation. The EPA is a United States Government Agency. It is in charge of regulating hazardous waste in terms of the Resource Conservation and Recovery Act.

For the purposes of this document only Subtitle C of the Resource Conservation and Recovery Act will be examined further.

Subtitle C of the Resource Conservation and Recovery Act (sections 3001-3019) establishes a system of hazardous waste management from cradle to grave, that is controlling hazardous waste from when it is generated to its ultimate disposal. I.e. it imposes an elaborate system of regulations for controlling the handling, transportation, storage and disposal of hazardous waste. The Resource Conservation and Recovery Act, Subtitle C programme has established an extremely comprehensive federal regulatory programme for controlling hazardous waste.

The Resource Conservation and Recovery Act of 1976

Subtitle C of the Resource Conservation and Recovery Act states what the EPA must do to govern hazardous waste handling and disposal and provides the EPA with the authority to carry out the provisions of the Act, specifically the various sections of subtitle C of the Act.⁵

Any person who generates, transports or manages a hazardous waste is subject to subtitle C of the Resource Conservation and Recovery Act.

The Resource Conservation and Recovery Act defines a hazardous waste as: -

A solid waste or combination of solid wastes, which because of its quantity, concentration, physical, chemical, or infectious characteristics may:

⁴ B Bilitewski, G Hardtle, K Marek, A Weissbachand, H Boeddicker *Waste Management* (1994) at 10.

- (i) cause, or significantly contribute to an increase in mortality or and increase in serious irreversible or incapacitating reversible illness: or
- (ii) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed⁶

While this definition refers to “solids” it has been interpreted to include semisolids, liquids and contained gases as well.⁷

Section 3001 of the Resource Conservation and Recovery Act requires the EPA to promulgate criteria for identifying hazardous wastes “taking into account toxicity, persistence, degradability in nature, potential accumulation in tissue as well as other hazardous traits such as corrosiveness and flammability. Following this, the EPA has specifically listed wastes⁸, and has identified four characteristics of hazardous waste, viz., ignitability, corrosivity, reactivity, extraction procedure toxicity.⁹

The remaining provisions of Subtitle C relate to standards and enforcement.¹⁰

Three sets of standards are required covering, generators, transporters and disposal sites. Section 3002 requires the Administer of the EPA to establish requirements for record-keeping, labeling, packaging and transportation of hazardous waste by firms that generate such materials. Furthermore the requirements are to provide for the use of a manifest system to assure that all hazardous waste generated is designated for treatment, storage or disposal in treatment, storage and disposal facilities for which the EPA has issued a permit.

⁵ Travis P Wagner *The Hazardous Waste Q & A, An In-depth Guide to the Resource Conservation and Recovery Act and the Hazardous Materials Transportation Act* (1990) at 1.

⁶ Resource Conservation and Recovery Act, Section 1004(5).

⁷ Charles A Wentz *Hazardous Waste Management* (1989) at 1.

⁸ Contained in 40 CFR 261.30 – 261.33

⁹ 40 CFR 261.20 – 261.24

¹⁰ Rodger W Findley, Daniel A Farber *Cases and Materials on Environmental Law* 3rd edition *American Case Book Series* (1991) at 494.

Section 3003 requires the EPA to publish standards to ensure that transporters of hazardous waste do not endanger human health or the environment. The standards must incorporate the manifest system as well as record-keeping and labeling requirements. Furthermore, sec 3003(b) requires the EPA to cooperate with the Department of Transportation in establishing certain standards.

Section 3008 provides for both civil and criminal penalties for violators of the hazardous waste sections of the Resource Conservation and Recovery Act, i.e. Subtitle C.

The United States manifest is a shipping paper that tracks hazardous waste from where it is generated to the facility where it is treated, stored or disposed of. The manifest allows generators to track the movement of hazardous wastes from their point of origin to their ultimate resting place, be it treatment, storage or disposal.

The Resource Conservation and Recovery Act manifest system contains the:

- Name and identification number of the generator, transporter and facility where the waste is to be treated, stored or disposed of;
- Department of Transportation description of the waste being transported;
- Quantities of waste being transported; and
- Address of the treatment, storage or disposal facility to which the generator is sending the waste.¹¹

The manifest operates as follows: when the transporter picks up the waste from the generator, both sign the manifest. The generator keeps a copy of the manifest. The transporter takes the rest of the copies with him/her. When the transporter delivers the waste to a facility, the facility signs the manifest. The transporter keeps a copy, the facility keeps a copy. The facility then sends a copy of the manifest to the generator notifying him/her that the waste has been received.

Under the authority of the Resource Conservation and Recovery Act, the EPA has promulgated numerous regulations covering all of the areas governed by the Resource Conservation and Recovery Act. These regulations appear in various parts, in the Code of Federal Regulations, Title 40, entitled "Protection of the Environment".¹²

Part 260 of Title 40 of the Code of Federal Regulations, contains the definitions and general administrative authority of the EPA. Part 261, discusses which materials are to be treated as hazardous wastes and how these determinations are to be made. Part 262, specifies the regulations that govern generators of hazardous waste. Part 263, governs transporters of hazardous wastes.

Generators are required, by the regulations to determine if the waste they produce is hazardous¹³, to obtain a United States identification number¹⁴, to package, label, mark and placard waste properly for off-site transportation¹⁵, to prepare a complete manifest to accompany the waste to off-site facilities¹⁶, and to comply with various record-keeping and reporting requirements.¹⁷

A transporter, in terms of the EPA regulations is any person engaged in the off-site transportation of hazardous waste by air, rail, highway or water.¹⁸ The EPA's transport regulations, under 40 CFR263, apply to any transporter of hazardous waste except for on-site movements (i.e. within a facility's boundaries).

The EPA regulations require transporters to obtain a United States identification number.¹⁹ The regulations further provide that all transporters are required to carry completed manifests identifying the wastes being transported and that the manifest must

¹¹ Bilitewske, Hardtle, Marek, Weissbach and Boeddicker at 116.

¹² <http://frewebgate2/access/gpo.gov/cgi-bin/waisgate.cgi?WAISdocID>

¹³ 40 CFR 262.11

¹⁴ 40 CFR 262.12

¹⁵ 40 CFR 262.30 – 262.33

¹⁶ 40 CFR 262.20 – 262.23

¹⁷ 40 CFR 262.40 – 262.44

¹⁸ 40 CFR 260.10

¹⁹ 40 CFR263.11

accompany the shipment at all times.²⁰ The regulations also require transporters to comply with record-keeping procedures, i.e. transporters must keep a copy of each signed manifest for at least three years.²¹ Finally the EPA regulations require transporters to comply with discharge and clean up procedures, i.e. transporters are required to take immediate action in the event of a discharge, such action may include notifying local authorities or initiating interim measures such as diking an area to contain the wastes.²² A transporter must further, clean up any hazardous waste discharge that occurs during transportation or take such action as may be required or approved by Federal, State, or local officials so that the hazardous waste discharge no longer presents a hazard to human health or the environment.²³

‘A discharge of hazardous waste is defined as the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water.’²⁴

The Hazardous Materials Transportation Act of 1975

The Hazardous Materials Transportation Act directs the Secretary of Transportation to issue regulations governing any safety aspect of the transportation of hazardous materials which the Secretary deems necessary or appropriate.²⁵ Under the authority of the Hazardous Materials Transportation Act, the Department of Transportation has promulgated numerous regulations covering the transportation of hazardous waste, including the packaging, handling, labeling and routing of the materials, the manufacture, testing, maintenance and marking of containers, and the qualifications and training of persons engaged in the handling and transportation of hazardous materials. These regulations appear in various parts (specifically parts 171 through 179), in the Code of Federal Regulations, Title 49, entitled “Transportation”.²⁶

²⁰ 40 CFR 263.20 – 236.21.

²¹ 40 CFR 263.22

²² 40 CFR 263.30

²³ 40 CFR 263.31

²⁴ Wentz at 247.

²⁵ Hazardous Materials Transportation Act, Section 105(a).

49 CFR171.3 provides that no person may offer for transportation or transport a hazardous waste in interstate or intrastate commerce except in accordance with the requirements of this subchapter.

The Department of Transportation (DOT) regulations require generators and transporters of hazardous waste to comply with the regulations for proper shipping names of materials; proper containers, marking and labeling of containers; placarding of vehicles; and incident reporting. The DOT regulations prohibit all transporters from accepting hazardous materials that have not been properly identified, packaged, marked and labelled.

Part 172 contains the proper shipping names for hazardous materials. These are contained in the Hazardous Materials Table.²⁷ The Hazardous Materials Table lists those materials designated by the DOT as hazardous for the purpose of transportation. It identifies the proper shipping names, hazard classifications, United Nations/North American identification numbers, and references for the requirements for labeling, packaging and shipping procedures.

Part 172, also contains marking requirements for packages, freight containers and transport vehicles as well as placarding requirements for all motor vehicles, rail cars and freight containers carrying any hazardous waste. Placards are colour coded signs that are placed on the ends and sides of transport vehicles, indicating the hazard of the cargo. An example of a placard is a colour coded sign with the word "Dangerous" displayed on it.

All placards must be readily visible and placed on the front, back and sides of all motor vehicles, rail cars and freight containers carrying hazardous waste. Furthermore, placarding hazardous wastes is the joint responsibility of the generator and transporter. A Generator who offers a hazardous waste for transport by highway, must provide the transporter with the placards required for the waste prior to or at the time it is offered for

²⁶ <http://frewebgate2.access.gpo.gov/cgi-bin/waisgate.cgi?WAIS.cgi?WAISdocID>

²⁷ 49 CFR172.101

transport, unless the transporter's vehicle is already properly placarded for the waste material.

Part 173 of the DOT regulations address the general requirements for shipments and packaging of hazardous wastes. Subparts C through O of Part 173 provide the specific packaging and shipping requirements for each of the various Department of Transportation classes of hazardous wastes and for the individual material within each class. Before offering a hazardous waste for transportation, a generator must ensure that all packages and containers meet the packaging and shipping requirements.

Part 178 and 179 of the regulations outline the specifications for both shipping containers and tank cars respectively. A generator must determine that all containers used are assembled with all parts or fittings in their proper place and properly secured and marked in accordance with the applicable specifications prescribed in parts 178 and 179.

Finally, part 171 of the DOT regulations contains incident (spills) and reporting requirements. I.e. at the earliest possible moment, a transporter must give notice to the National Response Center after each incident that occurs during the course of transportation (including loading, unloading and temporary storage) in which, as a direct result:

- A person is killed;
- A person is injured such that he requires hospitalization;
- Estimated transport of property damage exceeds \$50 000
- Fire, breakage, spillage, or suspected radioactive or etiological contamination exists;
- It is determined by the transporter that a continuing danger to life exists at the scene of the incident.²⁸

²⁸ 49-CFR171.15

In addition, a transporter is required to file a written report to the DOT in Washington D.C., within 15 days, concerning any incident. The transporter is also required to include a copy of the manifest, and estimate of the quantity of waste removed from the scene, the name and address of the facility to which it was taken, and the manner of disposition of any unremoved waste.²⁹

From the above mentioned discussion it becomes apparent that the existing legislation and regulations governing the transportation of hazardous waste in the United States are extremely extensive.

Having examined the legislation/regulatory measures governing the transportation of hazardous waste in the United States, the document will now turn to examine the legislation/regulatory measures pertaining to the transportation of hazardous waste in Australia.

²⁹ 49 CFR171.16

Chapter Four

Regulatory Measures/Legislation Governing the Transportation of Hazardous Waste in Australia

Environmental Legislation in Australia occurs mainly on a State level as opposed to on a National level. As such, the States are responsible for enacting their own legislation governing aspects of environmental law. With regards to hazardous waste, three States have enacted legislation governing the topic as well as its transportation. I.e. South Australia has enacted the Dangerous Substances Act 1979, the Northern Territory has enacted the Dangerous Goods Act 1996, and New South Wales has enacted the Road and Rail Transport (Dangerous Goods) Act 1997.

Although environmental legislation is dealt with on a State level, it must be noted that there is Commonwealth Legislation governing the transportation of hazardous waste, and that this legislation applies in each State until they have enacted their own. I.e. the Commonwealth Road Transport Reform (Dangerous Goods) Act 1995. It must further be noted however, that although New South Wales has its own Road and Rail Transport (Dangerous Goods) Act, this Act is in most respects uniform with the Road Transport Reform (Dangerous Goods) Act of the Commonwealth. The main difference between the former Act and the latter being that the New South Wales Act also applies to rail transport in addition to road transport. The South Australia and Northern Territory Acts, also, in most respects, contain similar provisions to the Commonwealth Act.

It is therefore submitted, that the similarities between the New South Wales, the Northern Territory, South Australia and Commonwealth legislation are such that it is not worthwhile examining each of the Acts individually, rather the document will focus on the Commonwealth legislation that exists. I.e. the Road Transport Reform (Dangerous Goods) Act 1995. Furthermore, since the Commonwealth regulations issued under the Road Transport Reform (Dangerous Goods) Act apply in New South Wales, the Northern

Territory and South Australia, subject to minor modifications, the document will focus only on the Commonwealth regulations.¹

The Commonwealth Road Transport Reform (Dangerous Goods) Act 1995

The purpose to the Road Transport Reform (Dangerous Goods) Act is to regulate the transport of dangerous goods by road in order to protect public safety and protect property and the environment.²

“Dangerous goods” is defined in the Act, as a substance or article prescribed as dangerous goods; or a substance or article determined by a Competent Authority in accordance with the regulations to be dangerous.³

The problem with this definition however is that neither the Act nor the regulations issued under the Act go any further in offering a comprehensive definition of dangerous goods.

The Act however, does go further in defining a dangerous situation, what the involvement in the transport of dangerous goods by road includes, and what transport, in relation to dangerous goods, includes. I.e. a dangerous situation means a situation involving the transport of dangerous goods by road that is causing or is likely to cause imminent risk of death or injury to a person, or harm to the environment or to property.⁴

Involvement in the transport of dangerous goods by road includes:

- (a) the importing, or arranging for the importation of, dangerous goods into Australia;
- (b) the marking of packages and unit loads containing dangerous goods for transport by road, and placarding containers and vehicles in which dangerous goods are transported by road;

¹ The Road Transport Reform (Dangerous Goods) Regulations – rtrga1998202.txt at www.austlii.edu.au

² Road Transport Reform (Dangerous Goods) Act 1995, Section 3.

³ Road Transport Reform (Dangerous Goods) Act 1995, Section 6.

⁴ Section 6.

- (c) consigning dangerous goods for transport by road;
- (d) the loading of dangerous goods onto a vehicle, or into a container that is to be put on a vehicle, for the transport by road or the unloading of dangerous goods that have been transported by road;
- (e) the driving of a vehicle carrying dangerous goods by road; and
- (f) being the consignee of dangerous goods transported by road.⁵

Transport, in relation to dangerous goods, includes:

- (a) the packaging, loading and unloading of the goods, and the transfer of the goods to or from a vehicle, for the purpose of their transport;
- (b) the marking of packages and unit loads containing dangerous goods, and the placarding of containers and vehicles in which dangerous goods are transported; and
- (c) other matters incidental to their transport.⁶

The Act requires the vehicle to be used in the transport of dangerous goods by road, as well as the driver of the vehicle, to be licensed for such transportation and provides a penalty of \$50 000, or imprisonment for 2 years, or both, for contravention of this provision.⁷

Section 11 of the Act requires the Governor General to promulgate regulations governing the transportation of dangerous goods. Under this authority numerous regulations have been issued.

The regulations establish a system of licenses and standards for the transport of dangerous goods by road and also apply the Australian Code for the Transport of Dangerous Goods by Road and Rail to such transport.

The Road Transport Reform (Dangerous Goods) Regulations 1998

⁵ Section 6.

⁶ Section 6.

The main objects of the regulations issued are:

- (a) to reduce as far as practicable the risks of personal injury, property damage and environmental harm arising from the transportation of dangerous goods by road;
- (b) to give effect to the standards, requirements and procedures of the Australian Dangerous Goods Code for the Transport of Dangerous Goods by Road and Rail (ADG) so far as they apply to the transport of dangerous goods by road;
- (c) to promote consistency between the standards, requirements and procedures applying to the transport of dangerous goods by road and by other means of transport.⁸

The regulations distinguish between “packaged dangerous goods”⁹, “dangerous goods in bulk”¹⁰, “placard loads”¹¹, and “unit loads”¹² and offer a definition for each. They also identify the kinds of containers that may be used for the transport of dangerous goods by road.¹³

The Commonwealth regulations further, identify and define persons with special duties i.e. to whom the regulations apply. Namely, vehicle owners¹⁴, consignors (generators)¹⁵, packers¹⁶, loaders¹⁷, drivers and prime contractors.¹⁸ A person is a the prime contractor for the transport of dangerous goods by road if the person, in conducting a business for or

⁷ Section 35.

⁸ Road Transport Reform (Dangerous Goods) Regulations, Regulation 1.3

⁹ Regulation 2.11

¹⁰ Regulation 2.12

¹¹ Regulation 2.13

¹² Regulation 2.14

¹³ Regulations 2.15-2.17

¹⁴ Regulation 2.18

¹⁵ Regulation 2.19

¹⁶ Regulation 2.20

¹⁷ Regulation 2.21

¹⁸ Regulation 2.22

involving the transport of dangerous goods by road, undertakes to be responsible, or is responsible, for the transport of the goods by road.¹⁹

In addition the regulations govern the: packaging²⁰, marking²¹ and placarding²² of dangerous goods; the shipping documentation²³ and emergency information²⁴ required for the transport of dangerous goods; and the steps to be taken in an emergency situation.²⁵

With regards to the packaging of dangerous goods. The Regulations provide that dangerous goods must be packaged in accordance with chapter 3 of the ADG Code.²⁶ The regulations further list the duties of the consignor, packer, loader, prime contractor and driver with regards to the packaging of dangerous goods.²⁷ I.e. a person must not consign packaged dangerous goods for transport by road in packaging if the person knows, or reasonably ought to know that the packaging:

- (a) is unsuitable for the transport of goods by road; or
- (b) is not used in accordance with chapter 3 of the ADG Code.²⁸

A person must not drive a vehicle transporting packaged dangerous goods by road in packaging if the person knows or reasonably ought to know, that the packaging is damaged or defective to the extent that it is not safe to use to transport the goods by road.²⁹

With regards to the marking of dangerous goods. The regulations provide that dangerous goods must be appropriately marked. Appropriately marked means marked in

¹⁹ Regulation 2.22

²⁰ Regulation 3.1-3.7

²¹ Regulations 7.1-7.5

²² Regulations 7.6-7.10

²³ Regulations 11.1-11.4

²⁴ Regulations 11.5-11.8

²⁵ Regulations 14.1-14.3

²⁶ Regulation 3.1-3.2

²⁷ Regulations 3.3-3.7

²⁸ Regulation 3.3

²⁹ Regulation 3.7

accordance with chapter 7 of the ADG Code.³⁰ In addition the regulations again list the duties of consignor, packers, and prime contractor.³¹ I.e. a person may not consign dangerous goods for transport by road in a package or unit load unless the package or unit load is appropriately marked.³²

A prime contractor must not transport goods by road if the prime contractor knows, or reasonably ought to know that:

- (a) the goods are dangerous goods; and
- (b) the package or unit load is not appropriately marked³³

With regards to the placarding of dangerous goods, the regulations provide that dangerous goods must be placarded in accordance with chapter 7 of the ADG Code³⁴, and they yet again list the duties of the consignor, the loader, prime contractor and the driver.³⁵ I.e. a person must not consign a placard load of dangerous goods for transport by road unless the load is appropriately placarded.³⁶

A person must not drive a vehicle transporting dangerous goods by road if the person knows, or reasonably ought to know, that:

- (a) the goods are a placard load;
and
- (b) the load is not appropriately placarded.³⁷

In terms of the shipping documentation required for transporting dangerous goods by road, the regulations list the duties of the consignor, prime contractor and driver in this regard. I.e. a person must not consign dangerous goods for transport by road on a vehicle unless the prime contractor or driver of the vehicle has shipping documentation,

³⁰ Regulation 7.1- 7.2

³¹ Regulations 7.3-7.5

³² Regulation 7.3

³³ Regulation 7.5

³⁴ Regulation 7.6

³⁵ Regulations 7.7-7.10

³⁶ Regulation 7.7

³⁷ Regulation 7.10.

complying with chapter 11, of the ADG Code, for the goods.³⁸ The prime contractor must ensure that a person does not drive a vehicle used by the prime contractor to transport dangerous goods by road unless the person has been given shipping documentation, complying with chapter 11, of the ADG Code, for the goods.³⁹ The driver of a vehicle transporting dangerous goods by road must carry shipping documentation, complying with chapter 11, of the ADG Code, for the goods.⁴⁰

The shipping document referred to could be seen, as being similar to the manifest system required by the United States legislation and regulations.

With regards to the emergency information required when transporting dangerous goods by road. The regulations provide, firstly that such emergency information means emergency information complying with chapter 11, of the ADG Code, or emergency information that is approved by a competent authority.⁴¹ Secondly, the regulations list the duties of the consignor, prime contractor and driver with regards to emergency information. I.e. a person may not consign a placard load of dangerous goods for transport by road on a vehicle if the person knows, or reasonably ought to know, that the required emergency information is not on the vehicle.⁴²

A prime contractor must not use a vehicle to transport a placard load of dangerous goods by road unless:

- (a) the vehicle is equipped with an emergency information holder, complying with chapter 11, of the ADG Code; and
- (b) the required emergency information is in the holder.⁴³

A person must not drive a vehicle transporting a placard load of dangerous goods by road unless:

- (a) the vehicle is equipped with an emergency information holder, complying with chapter 11, of the ADG Code: and
- (b) the required emergency information is in the holder.⁴⁴

³⁸ Regulation 11.2

³⁹ Regulation 11.3

⁴⁰ Regulation 11.4

⁴¹ Regulation 11.5

⁴² Regulation 11.6

⁴³ Regulation 11.7

Finally, in terms of the procedures to be taken in an emergency situation. The regulations provide that in the event that a vehicle transporting dangerous goods by road is involved in an incident resulting in a dangerous situation, the driver of the vehicle must:

- (a) notify the police or fire service or the incident as soon as practicable;
- (b) notify the prime contractor of the incident as soon as practicable; and
- (c) provide the reasonable assistance required by an authorised officer, or an officer of an emergency service, to deal with the situation.⁴⁵

In addition, the regulations require the prime contractor and driver of the vehicle to as soon as practicable after the incident, tell the competent authority about the incident and provide details of:

- (a) where the incident happened;
- (b) the time and date of the incident;
- (c) the nature of the incident; and
- (d) the dangerous goods being transported when the incident happened.⁴⁶

The regulations further provide that no later than 21 days after the day when the incident happened, the driver and prime contractor must give the competent authority a written report about the incident. The report must provide details of:

- (a) where the incident happened;
- (b) the time and date of the incident;
- (c) the nature of the incident;
- (d) what the prime contractor and driver believes to be the likely cause of the incident;
- (e) the dangerous goods being transported when the incident happened;

⁴⁴ Regulation 11.8

⁴⁵ Regulation 14.1

- (f) the measures taken to control any leak, spill or accidental escape of dangerous goods, and any fire or explosion, arising out of the incident; and
- (g) the measures taken after the incident in relation to the dangerous goods involved in the incident.⁴⁷

In conclusion, it is submitted that the Road Transport Reform (Dangerous Goods) Act 1995 as well as the regulations issued under the Act contain extensive pre-transport and transport requirements that need to be complied with before and during the transportation of dangerous goods.

Having examined the Commonwealth legislation and regulations that exist in Australia, the document will now proceed to examine the legislation/regulatory measures governing the transportation of hazardous waste in Britain.

⁴⁶ Regulation 14.3

⁴⁷ Ibid.

Chapter Five

Regulatory Measures/Legislation Governing the Transportation of Hazardous Waste in Britain

The respect for environmental Law that exists in Britain is probably higher than in any other country in the world.¹ As such, it is submitted that the document would not be complete without examining the regulatory measures/legislation governing the transportation of hazardous waste in Britain.

There are at present, three Acts which govern the waste management regime in the U. K., namely, the Control of Pollution Act 1974, the Control of Pollution (Amendment) Act 1989 and the Environmental Protection Act 1990. As well as numerous regulations.

Part II of the Environmental Protection Act 1990 shapes the core of the law of waste management.² However, part II of the Environmental Protection Act 1990 is supplemented by the provisions of the Control of Pollution (Amendment) Act 1989, which was brought into force on 1 April 1992.³ The Control of Pollution (Amendment) Act 1989 provides controls over the transport of waste. Furthermore it is important to note, that, although the Environmental Protection Act 1990 was designed to impose tighter controls and replace the Control of Pollution Act 1974, at the time of writing, regulations issued under the Control of Pollution Act 1974, i.e. the Control of Pollution (Special Waste) Regulations, continue to apply under the Environmental Protection Act 1990.

The Environmental Protection Act 1990

Waste is defined in the Environmental Protection Act 1990 as including:

¹ Andrew Porteous *Hazardous Waste Management Handbook* (1985) at 41.

² Hawke *Environmental Health Law* (1995) at 181.

³ Simon Ball and Stuart Bell *Environmental Law* 2nd Edition (1994) at 317.

- (a) any substance which constitutes a scrap material or an effluent or other unwanted surplus substance arising from the application of any process; and
- (b) any substance or article which requires to be disposed of as being broken, worn out, contaminated or otherwise spoiled.⁴

The Environmental Protection Act then adds that, anything, which is discarded or otherwise dealt with as if it were waste, shall be presumed to be waste unless the contrary is proved.⁵

At the heart of the statutory control envisaged by the Environmental Protection Act is an important distinction between so called special waste – special waste is the term used to describe hazardous waste in Britain, controlled waste and wastes which are not regarded as controlled waste

The Act defines “controlled waste” as meaning ‘household, industrial and commercial waste or any such waste’.⁶ The Act then continues by expanding on the definitions of those types of waste. Further assistance in the definition of the types of controlled waste is to be found in the Controlled Waste Regulations 1992, issued under the Act.

The Environmental Protection Act 1990 thus applies mainly to controlled waste. I.e. most of the provisions of the Environmental Protection Act apply only to controlled waste.

The Act however, does contain provisions relating to special waste (hazardous waste). I.e. section 62 gives the Secretary of State power to make regulations in relation to waste which, by reason of its nature, is difficult to treat or keep or dispose of. It is important to note, that although section 62 of the Environmental Protection Act enables regulations to be made, at present, current controls in this regard are set out in the Control of Pollution (Special Waste) Regulations 1980. These regulations were made under the Control of Pollution Act 1974. When new regulations are made under sec 62, these will replace the

⁴ Environmental Protection Act 1990, Section 75(2)

⁵ Section 75(3)

⁶ Section 75(4)

Control of Pollution (Special Waste) Regulations, however at present the latter regulations continue to apply.

Pending their replacement, the Special Waste Regulations are constructed by reference to 6 sections. I.e. 'the introductory section seeks, inter alia, to define special waste, the second part of the regulations relates to a fundamental feature of the law here: the need for consignment notes in a chain that will link (as appropriate) producers, carriers, importers, exporters and disposers. A further segment of the regulations provides for special arrangements in the event of regular consignments of special waste. The fourth part of the regulations require producers, carriers and disposers to maintain registers for consignment notes and those making deposits on land to maintain site records of the wastes' location. In the fifth part of the regulations, the Secretary of State is given power to direct the holder of a disposal license to accept and dispose of special waste at a specified location. Finally the regulations, in the sixth part, provide for matters of enforcement – it is provided that an offence is committed, which is triable either summarily or on indictment, where the regulations are not complied with.'⁷

The document will now turn to examine the relevant parts of the Special Waste Regulations.

In part 1 of the 1980 Regulations, special waste is defined as:

Any controlled waste which:

- (a) consists of or contains any of the substances listed in part 1 of schedule I and by reason of the presence of such substances:
 - (i) is dangerous to life within the meaning of part II of schedule I;
 - (ii) has a flash point of 21 degrees celsius or less as determined by the methods and with the apparatus laid down by British Standards Institution; or

⁷ Hawke at 213, See also David Hughes *Environmental Law* (1986) at 267.

- (b) is a medicinal product, as defined in section 130 of the Medicines Act 1968, which is available only in accordance with a prescription given by an appropriate practitioner as defined in sec 58(1) of that Act⁸

The list in schedule I, part I of the 1980 regulations is a lengthy one that includes acids and alkalis, antimony and antimony compounds, arsenic compounds asbestos, metals, biocides and such things as organic halogen compounds.⁹

For the purpose of the definition, waste is to be regarded as dangerous to life by paragraph 1 of part II of schedule I if:

- (a) a single dose of not more than 5 cubic centimeters would be likely to cause death or serious damage to tissue if ingested by a child of 20 kg body weight; or
- (b) exposure to it for 15 minutes or less would be likely to cause serious damage to human tissue by inhalation, skin contact or eye contact.

Part II of the Special Waste regulations applies a system of consignment notes to those producing, transferring or disposing of special waste. 'The notes record waste, and act as notification to the relevant disposal authorities in areas of production and disposal.'¹⁰ There are however exceptions in respect of disposals at the site of production or via pipelines.¹¹

The system of consignment notes is established, so that the progress of the waste may be traced from its place of origin to its place of disposal.

'The consignment note must travel with the waste, and at every relevant stage a copy must be sent to the waste regulation authority. The central element of the system is that

⁸ Control of Pollution (Special Waste) Regulations 1980, regulation 2.1

⁹ See John D Leeson *Environmental Law* (1995) at 436.

¹⁰ Hughes at 267.

¹¹ *Ibid.*

advance notice must be given to special waste movements. The producer of special waste must prepare 6 copies of a note, which should consist of five parts, lettered A to E. Parts A and B are to be filled in and signed by the producer and must describe the waste precisely, including the size, type and number of containers in which it is packed, and record its collection point and destination. A copy must then be sent to the waste regulation authority for the area where the waste is to be disposed of so as to arrive not more than 1 month and not less than 3 days before the waste is removed from the site. Part C is a certificate that must be filled in by the carrier of the waste before it is removed. At that stage the producer must also complete and sign part D, which contains a statement that the carrier was told of any appropriate precautionary measures. Part E is to be completed by the disposer of the waste to certify receipt. The disposer then sends the completed note to the waste regulation authority immediately.¹²

Part III of the regulations provides that where there is a regular consignment to one disposal site a waste regulation authority may give written notice that the requirement of separate notification for every consignment be waived and instead require the notes to be forwarded at least 12 months.¹³

Part IV of the regulations provides that producers of special waste have to keep a register of all consignment notes at the production site for at least 2 years. Carriers and disposers have obligations to keep similar registers. Part IV, further provides that the disposer must keep a record of the location of any special waste that is deposited.¹⁴

Finally, part VI of the regulations provides that it is a criminal offence to fail to comply with any of the regulations. The maximum penalty for a conviction in the Magistrates Court is 2500 pounds.

In keeping with the discussion on the Environmental Protection Act 1990, it is important to note that the Act has introduced a new principle into waste management, i.e. that of the

¹² Ball and Bell at 350.

¹³ Control of Pollution (Special Waste) Regulations 1980, regulation 9

duty of care. The duty of care introduced by section 34 is regarded as a major strengthening of the waste control mechanism.¹⁵

Section 34(1) provides that:

It shall be the duty of any person who imports, produces, carries, keeps, treats or disposes of controlled waste or, as a broker, has control of such waste to take all such measures applicable in the circumstances: -

- (a) to prevent any contravention by any other person of section 33 above (the prohibition of unauthorised or harmful deposit, treatment or disposal etc of waste);
- (b) to prevent the escape of the waste from his control or that of any other person; and
- (c) on the transfer of the waste, to secure –
 - (i) that the transfer is only to an authorised person or to a person for authorised transport purposes; and
 - (ii) that there is transferred such a written description of the waste as will enable other persons to avoid a contravention of that section and to comply with the duty under this subsection as respects the escape of waste

The obvious intention of the Act is thus to place a statutory responsibility on all those who deal with controlled waste from its very creation to its ultimate disposal, to prevent environmental harm accruing from the waste.¹⁶

Section 34(3) defines who are 'authorised persons' for the purpose of sec 34(1)©. 'Authorised transport purposes' for the purpose of section 34(1)© are defined in sec

¹⁴ Control of Pollution (Special Waste) Regulations 1980, regulation 14

¹⁵ William Birtles and Richard Stein *Planning and Environmental Law* 1st Edition (1994) at 168.

34(4). Furthermore section 34(5) empowers the Secretary of State to make regulations imposing requirements on any person who is under a duty of care imposed by sec 34(1) as respects the making and retention of documents and the furnishing of documents or copies of documents. Under this provision, the Environmental Protection (Duty of Care) Regulations 1991 have been made.

The Duty of Care Regulations make detailed provisions concerning the transfer of controlled waste.¹⁷ I.e. the regulations compel a transferee to secure the completion and signing of a transfer note simultaneously with the creation of the written description of the waste as required in sec 34(1)©. The transfer note must identify the waste to which it relates and state its quantity, whether on transfer it is loose or in a container and if so, the kind of container and the time and place of transfer. It must also give the name and address of the parties, it must state whether or not the transferor is the producer or importer of the waste. Both items – the written description and the transfer note must be kept by the parties to the transaction for 2 years from the date of transfer. Although copies must be produced on demand, the regulations do not require the documentation such as the transfer note to be carried on any journey for the transportation of the waste in question.

The Environmental Protection Act 1990, makes it an offence under sec 34(6) to fail to comply with the duty of care imposed by sec 34(1) or any requirement imposed under sec 34(5).

In addition, following consultation, the Secretary of State has prepared a code of practice under sec 34, which provides guidance of how to discharge the duty of care.

It is important to note that this duty of care also applies to the handling, transport and so on of special waste, in addition that is, to the provisions of the Control of Pollution (Special Waste) Regulations.

¹⁶ Francis Mcmanus *Environmental Health Law* (1994) at 65.

¹⁷ Mcmanus op cit. n 16 at 67.

Furthermore, since the definition of special waste in the 1980 Control of Pollution (Special Waste) Regulations makes it clear that special waste is controlled waste¹⁸, it therefore follows that the legislation/regulatory measures in place governing the transportation of controlled waste apply to special waste as well. As such the document will now turn to examine the Control of Pollution (Amendment) Act 1989.

The Control of Pollution (Amendment) Act 1989

The Control of Pollution (Amendment) Act 1989 provides controls over the transport of waste. The Act took effect contemporaneously with sec 34 of the Environmental Protection Act (duty of care). ‘It is an Act which attempts to render much more difficult the carriage of waste and the subsequent disposal of that waste in a manner falling short of legal requirements.’¹⁹

Section 1(1) of the 1989 Act provides that it is an offence of any person, who is not a registered carrier of controlled waste, and in the course of business or otherwise with a view to profit, to transport any controlled waste to or from any place in Great Britain. There are however certain limited exemptions – these are contained in sec 1(2). Further exemptions are contained in the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991, issued under sec 1(3) of the 1989 Act. I.e. the regulations exempt waste collection authorities, waste disposal authorities and producers of controlled waste from registration.²⁰ The regulations further require carriers of waste to be in possession of a registration certificate and to keep a copy of such certificate in the vehicle at all times.

In concluding the discussion on the legislation/regulatory measures governing the transportation of hazardous waste in Britain, it is important to note that in addition to the Control of Pollution (Special Waste) Regulations, the Control of Pollution (Amendment) Act, the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations,

¹⁸ See John D Leeson at 437.

¹⁹ John Garbutt *Environmental Law: A Practical Handbook* 2nd Edition (1995) at 58-59.

the Environmental Protection Act and the Environmental Protection (Duty of Care) Regulations, the transport of special waste is further controlled under the Chemical Hazard Information and Packaging Regulations 1993. These regulations contain provisions relating to the carriage of special waste by road, rail, air, sea, as well as carriage by tankers.²¹ The regulations further contain detailed provisions on such things as the design of containers and the training of those responsible for such waste.²²

Having examined the legislation/regulatory measures pertaining to the transportation of hazardous waste in South Africa, the United States, Australia and Britain, it is submitted that despite considerable progress being made to the regulatory measures governing the transportation of hazardous waste in South Africa, certain shortcomings continue to exist when one compares the regulatory measures that exist in South Africa to those that exist in the United States, Australia and Britain. The logical step would thus be to simply include those measures which are lacking in South Africa and which exist elsewhere, namely in the United States, Britain and Australia.

However, before proceeding to recommend the inclusion of certain regulatory measures that exist in the United States, Britain and Australia, a critical evaluation of the controls that exist in the United States, Britain and Australia needs to be undertaken in order to identify any shortcomings that may exist and thus to prevent the importation of these shortcomings into our law. It is thus to this that the document now turns.

²⁰ Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991, regulation 2

²¹ Ball and Bell at 351.

²² Ibid.

Chapter Six

A Critical Analysis of the Various Legislation

Despite considerable progress having been made in the legislation/regulatory measures governing the transportation of hazardous waste in South Africa, critical shortcomings still exist and need to be addressed as a matter of urgency.

Countries such as the United States, Britain and Australia have all enacted legislation governing the transportation of hazardous waste. South Africa thus, is in a fortunate position in that she may take the best components of all the control measures governing the transportation of hazardous waste that exist in these overseas countries and combine them to institute a system which is most suitable to her local conditions.¹ I.e. South Africa can look to the United States, Britain and Australia for measures on how to improve our current law regulating the transportation of hazardous waste.

It must be noted however, that the legislation/regulatory measures that exist in the United States, Britain and Australia with regards to the transportation of hazardous waste are not in themselves without fault. As such the document will now turn to examine the deficiencies that exist, not only in the South African legislation/regulatory measures but also in the legislation/regulatory measures that exist in the United States, Britain and Australia. The prime purpose of this being to prevent the shortcomings that exist in the control measures of these countries from being imported and incorporated into our law.

Firstly, with regards to the deficiencies that exist in the legislation/regulatory measures governing the transportation of hazardous waste in the United States. It has been suggested that the Resource Conservation and Recovery Act, Subtitle C programme is not accessible to a wide range of audience and as such cannot alter the conduct of persons who do not and cannot understand it.²

¹ 'Hazardous Waste: A Highly Specialised Undertaking' (Nov/Dec 1992) 17:11 *IMIESA* 13 at 13.

² John-Mark Stensvaag *Hazardous Waste law and Practice* (1986) at 1.

Moreover, it has been stated that the Hazardous Materials Transportation Act and the Resource Conservation and Recovery Act, contain unclear terminology as well as massive and confusing regulations.³ The current hazardous waste system in the United States is plagued by a number of regulations and rules that are both difficult for industry to comply with and the States to implement.⁴ In addition, from the viewpoint of industry, these massive regulations that exist, present the spectacle of massive paperwork.⁵ The Office of Management and Budget in the United States has estimated that the Resource Conservation and Recovery Act would require 5.2 million hours of labour per year from industry simply to fill out the necessary reports and manifests.⁶

It must be noted however, that despite the above mentioned criticisms, the United States has been seen from across the Atlantic as a role model on environmental issues.⁷ The Resource Conservation and Recovery Act has become the single most important legislative vehicle for the management of hazardous waste.⁸ Its main objective has been to ensure that hazardous waste management is accomplished in a manner that protects human health and the environment. As such it is submitted that the numerous regulations that exist as well as the massive paperwork that follows are essential if hazardous waste is to be controlled from cradle to grave. They are part and parcel of tracking hazardous waste from its point of origin to its point of ultimate disposal.

With regards to the deficiencies that exist in the legislation/regulatory measures governing the transportation of hazardous waste in Britain. The very specific definition of special waste that exists at present severely restricts the applicability of the Control of Pollution Regulations. I.e. special waste is presently defined by reference to its impact on human health, with no reference what so ever being made to environmental factors. It has been suggested that amendments should be made to the definition of special waste so

³ National Research Council, United States Transportation Research Board *Transportation of Hazardous Materials* (1986) at 27.

⁴ United States Environmental Protection Agency *The Nations Hazardous Waste Management Program at a Crossroads* The RCRA Implementation Study (1990) at 36.

⁵ Samuel S Epstein MD, Lester O Brown and Carl Pope *Hazardous Waste in America* (1989) at 254.

⁶ Epstein op cit. n 5 at 248.

⁷ Rosalind Malcom *A Guide to Environmental Law* (1994) at 233.

⁸ Charles A Wentz *Hazardous Waste Management* (1989) at 74.

as to clarify and widen the categories of special waste to cover, as far as possible, all wastes which are dangerous or difficult to dispose of, including some wastes which pose a risk to the environment rather than just those which threaten human health.⁹ It has further been suggested that, the amended definition should define special waste by reference to a list of properties which cause waste to be dangerous or difficult to dispose of, such as whether it is explosive, flammable, toxic, corrosive, or has ecotoxic effects. Moreover, that this set of general criteria be accompanied by a more specific list of types of special waste categorised by their source.¹⁰

In addition, one of the most critical shortcomings of the regulatory measures governing the transportation of hazardous waste in Britain is the fact that the control measures are diffused and confusing. I.e. the Control of Pollution (Special Waste) Regulations, which were made under the Control of Pollution Act, section 17, set out the controls for special waste. The Environmental Protection Act has repealed the Control of Pollution Act and enables new regulations to be made concerning special waste. However, such new regulations have not as yet been promulgated and as such the regulations made under the Control of Pollution Act continue to apply. Moreover, the Environmental Protection Act is supplemented by the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations, which were made under the Control of Pollution (Amendment) Act. It is submitted that this situation is clearly unsatisfactory and can only lead to chaos and confusion.

Turning now to examine the deficiencies inherent in the Australian legislation/ regulatory measures governing the transportation of hazardous waste. Australia has at present no national legislation governing the transportation of hazardous waste. This however is in itself confusing in that there is Commonwealth legislation, i.e. the Commonwealth Road Transport Reform (Dangerous Goods) Act as well as the Commonwealth Road Transport Reform (Dangerous Goods) Regulations, on the topic. Furthermore, the Commonwealth Road Transport Reform (Dangerous Goods) Act and the regulations issued under this Act

⁹ Simon Ball and Stuart Bell *Environmental Law* 2nd Edition (1994) at 351.

¹⁰ *Ibid.*

apply in each state until they have enacted their own legislation. It is important to note however, that although three states have enacted their own legislation on the topic, this legislation follows the Commonwealth legislation. The legislation and regulations enacted in New South Wales, South Australia and the Northern Territory, have extremely similar if not identical provisions to that of the Commonwealth Road Transport Reform (Dangerous Goods) Act and its regulations. Thus it is submitted that the Commonwealth legislation and regulations could in actual fact be seen as the national legislation on the topic of hazardous waste and its transportation in Australia.

A further deficiency in the Australian measures governing the transportation of hazardous waste is the fact that neither the Commonwealth Road Transport Reform (Dangerous Goods) Act nor the regulations made under this Act appear to give a comprehensive definition of dangerous goods (hazardous waste). In addition to this, although the legislation and the regulations mention a shipping document, no further reference is made to this shipping document. The regulations do not stipulate what information the shipping document should contain, whether copies of it should be signed and retained by each person who is a link in the transportation of dangerous goods, etc.

With regards to the shortcomings that exist in respect of the legislation/regulatory measures governing the transportation of hazardous waste in South Africa. As mentioned earlier in the document, (chapter 2), the current regulatory measures, i.e. the Conveyance of Hazardous Substances by Road Regulations, are deficient in a number of ways and although the Draft National Road Traffic Regulations attempt to remedy many of the deficiencies that exist they are as of yet only draft regulations. In addition critical shortcomings continue to exist. In particular, South Africa does not currently possess a coherent, effective system for regulating hazardous waste or its transportation.¹¹ Responsibility is diffused through different departments and depends of numerous regulations and Acts – the most important of which having been the focus of the

¹¹ RG Noble (Ed) *Hazardous Waste in South Africa* Volume 3: *Policy* (1992) Department of Environment Affairs CSIR: Pretoria at 1.

document, i.e. the Road Traffic Act, the Hazardous Substances Act and the National Road Traffic Act.

Moreover, what is of increasing concern is the fact that the draft regulations do not attempt to define hazardous waste. As such, the definition of hazardous waste, that presently exists, is to be found in the 1992 CSIR Report. It has been suggested however, that although this definition is extremely comprehensive and takes into account the environment, it is also extremely broad and as such some more specific terms need to be introduced to make it practically meaningful to officials, waste generators and operators.¹²

Lastly, although the draft regulations as well as the SABS Codes of Practice, which are given legal status by the regulations, mention a manifest document, they, other than defining a manifest and stating the information to be contained in the manifest, do not go any further in describing the purpose and procedure to be followed with regards to the manifest. No reference is made as to how the manifest is to work, namely, how many copies there should be, whether copies should be signed and retained by each person who is a link in the chain of transportation, whether records of the manifests should be kept etc.

In summary the points that have been made in the above discussion are as follows:

- In the United States, the present legislation/regulatory measures are plagued by massive regulations which in turn represent massive paperwork.

¹² Brain Peckham 'Some thoughts on the Regulation of Hazardous Waste Disposal in South Africa' (1994) 1 SAJELP 85 at 99. See also RG Noble (Ed) *Hazardous Waste in South Africa* Volume 4: *Legislative Options* (1992) Department of Environment Affairs CSIR: Pretoria at 5

- In Britain, the very specific definition of hazardous waste is restrictive in that no reference is made to environmental factors. Moreover, the control measures that exist in Britain are not only diffused but also confusing.
- In Australia, there is no national legislation on the topic of hazardous waste or its transportation. However, this in itself is confusing in that the Commonwealth legislation, the Commonwealth Road Transport Reform (Dangerous Goods) Act and the regulations issued under this Act, the Commonwealth Road Transport Reform (Dangerous Goods) Regulations, could in actual fact be regarded as the national legislation on the topic of hazardous waste and its transportation. In addition, neither the Commonwealth Road Transport (Dangerous Goods) Act nor the regulations made under this Act contain a comprehensive definition of dangerous goods (hazardous waste). Moreover, the Commonwealth legislation and the regulations, apart from mentioning a shipping document, do not go any further in stipulating what information the shipping document should contain and the procedure to be followed with regards to the shipping document.
- In South Africa, responsibility for regulating the transportation of hazardous waste is diffused through different departments and depends on numerous Acts. Moreover, neither the current regulatory measures, the Conveyance of Hazardous Substances by Road Regulations, nor the proposed Draft National Road Traffic Regulations contain a definition of hazardous waste. The definition of hazardous waste, that presently exists, is thus to be found in the 1992 CSIR Report. This definition however, although being extremely comprehensive is also extremely broad and as such needs more specific terms to be introduced in order to make it more meaningful. Lastly, although the draft regulations and the SABS Codes of Practice, which are given legal status by the regulations, mention a manifest document, neither the draft regulations nor the SABS Codes of Practice go any further in describing the purpose and procedure to be followed with regards to the manifest document.

Having identified the shortcomings that exist in the legislation/regulatory measures governing the transportation of hazardous waste in the United States, Britain and

Australia, and which must therefore be avoided in South Africa, the document will now turn to examine the improvements which can be made to our law governing the transportation of hazardous waste.

Chapter Seven

Recommendations

The situation, at present, regarding the transportation of hazardous waste in South Africa, is far from adequate. As a result the following chapter will now turn to examine the improvements which can be made to our present and proposed legislation/regulatory measures. It is submitted since that South Africa is in a position in that she may draw from the control measures that are in operation elsewhere, the improvements suggested will include the incorporation of certain control measures that exist in the United States and Britain. The control measures that exist in Australia however, will not be considered further, in that these measures appear to be similar to those that exist in South Africa at present. Moreover, they appear to be just as defective.

Turning now to examine the improvements which should be made to our current and proposed legislation. Firstly, it is submitted that hazardous waste control should be consolidated into one comprehensive Act. 'This legislation could take the form of an amendment to an existing Act (i.e. the Environment Conservation Act), or as a chapter dedicated to hazardous waste management in a general Act on waste management or as a separate Act.'¹

Moreover, a single government department should be designated as the regulatory authority for hazardous waste in South Africa², namely, the Department of Environment Affairs. The Department of Environment Affairs should in addition, have the responsibility for developing policy, publishing regulations and guidelines for their use as well as coordinating and supervising the implementation and enforcement of the legislation.³ The new legislation should furthermore set out the duties which are expected of waste handlers, i.e. generators, transporters, disposers. Moreover, a definition of hazardous waste should be included in the legislation. It has been suggested

¹ RG Noble (Ed) *Hazardous Waste in South Africa* Volume 4: *Legislative Options* (1992) Department of Environment Affairs CSIR: Pretoria at 42.

² Ibid.

that the definition of hazardous waste used in South Africa at present should be retained in the new legislation.⁴ In this regard it is important to note that since the present definition of hazardous waste requires the introduction of more specific terms in order to make the definition more practically meaningful to officials, waste generators and operators, guidelines have been suggested for a classification system of hazardous waste which define high hazard waste, moderately hazardous waste, potentially hazardous waste, low hazard waste and non hazardous waste.⁵ It has been recommended that this classification system be included in the new legislation, to supplement the present definition of hazardous waste.⁶

Secondly, it is submitted that the legislation in South Africa should provide for a cradle to grave control of hazardous waste. A first requirement of cradle to grave control is that the parties involved in hazardous waste, i.e. generators, transporters and operators or hazardous waste facilities, be identified.⁷ This requires some form of registration process, similar to that which exists in the United States and Britain. All hazardous waste generators, transporters and operators should be required to register with the regulatory

³ Ibid.

⁴ Noble op cit. n 1 at 11.

⁵ RG Noble (Ed) *Hazardous Waste in South Africa Volume 1: Situation Analysis* (1992) Department of Environment Affairs CSIR: Pretoria at 4. The report gives the following definitions:

‘High hazard waste: (Group 1) of first priority concern, containing significant concentrations of highly toxic constituents which are easily accessible, mobile, persistent in the environment and bio-accumulative;

Moderately hazardous waste: (Group 2) of second priority concern, with highly dangerous characteristics, which could be highly explosive, flammable, corrosive or reactive, or which is infective, or which contains significant concentrations of constituents that are potentially highly toxic but only moderately mobile, persistent or bio-accumulative, or that are moderately toxic but are highly mobile, or persistent in the environment, or bio-accumulative;

Low hazard waste: (Group 3) of third priority concern, which is moderately explosive, flammable, corrosive, or reactive, or contains significant concentrations of constituents that are potentially highly harmful to human health environment;

Potentially hazardous waste: (Group 4) which often occurs in large quantities, and which contains potentially harmful constituents in concentrations that in most instances would represent only a limited threat to human health or the environment;

Non-hazardous waste: (Group 5) which at most contains only insignificant Concentrations of harmful constituents.’

⁶ RG Noble vol. 4 at 4.

⁷ Noble op cit. n 6 at 34.

authority, namely the Department of Environment Affairs.⁸ In addition the legislation should make provisions for a system of permits to be obtained from the regulatory authority, i.e. the Department of Environment Affairs.⁹ Permits should be required by any party, whether a generator, transporter or operator, in order to engage in any activity involving hazardous waste. Transporters should accept waste only from a licensed generator and should deliver it only to a licensed disposer.¹⁰

It has been suggested, that the legislation should further provide that any waste generator, waste transporter or operator of a waste facility failing to register or to apply for a permit, or handling, treating or disposing waste in an unauthorized manner should be both liable delictually for any consequences and liable to be prosecuted criminally.¹¹

It is important to note however, that despite the fact that permits offer an important measure of control and have been a moderately successful instrument in controlling water pollution through the Water Act and in regulating waste disposal sites through the Environment Conservation Act¹², further controls are needed. To require permits of transporters only is not sufficient.¹³

As such it is submitted that a notification requirement, similar to the notification system that exists in Britain should be incorporated. A producer/generator should be compelled to notify the transporter and receiver in advance of the quantities and composition of hazardous waste to be transported.

In addition, it has been suggested that the legislation should require all waste generators, waste transporters and waste operators to notify the regulatory authority annually of the kinds, quantities, composition, movement, treatment and disposal of hazardous waste.¹⁴ Transporters should be required to render annual returns of the waste transported, the

⁸ Noble op cit. n 6 at 43.

⁹ Ibid.

¹⁰ RG Noble vol. 4 at 59.

¹¹ Noble op cit. n 10 at 42.

¹² Noble op cit. n 10 at 33.

¹³ RG Noble (Ed) *Hazardous Waste in South Africa Volume 5: Impact Assessment* (1992) Department of Environment Affairs CSIR: Pretoria at 63.

¹⁴ RG Noble (Ed) *Hazardous Waste in South Africa Volume 3: Policy* (1992) Department of Environment Affairs CSIR: Pretoria at 27.

quantities, the name of the generators and the name and address of the party to whom they were delivered.¹⁵

A further vital element in the cradle to grave control of hazardous waste is a system of consignment notes i.e. manifests. Although the proposed legislation/regulatory measures mention and define a manifest no further reference is made to the procedure to be followed in this regard. As such it is submitted that a manifest system, similar to that which is in operation in the United States and Britain, should be provided for in the legislation. I.e. 'the legislation must provide for documentation to track all movements of hazardous waste from the site of generation to final disposal.'¹⁶ The legislation should place a responsibility on all hazardous waste generators to initiate and control a system of transport manifests.¹⁷ The legislation should further provide standardized forms (manifests). These standardized forms should indicate the quantities, composition and hazard rating of the hazardous waste as well the process source, the intended action.¹⁸

The consignment notes or manifests should be completed by the waste generator, who in addition must retain one copy for record purposes. Other copies should accompany the consignment of hazardous waste, with one copy being retained by the waste transporter and another being retained by the recipient (i.e. the operator of the waste facility). The last copy of the manifest (i.e. the fourth copy) should be sent by the waste operator back to the waste generator along with a certification of safe receipt.¹⁹ The legislation should also place a responsibility on the waste generator to file an exception report to the regulatory authority, if there is any deviation from this procedure, i.e. if any irregularity is detected, and in particular if any part of the consignment fails to reach its destination.²⁰

¹⁵ RG Noble vol. 4at 59.

¹⁶ Noble op cit. n 15 at 44.

¹⁷ Noble op cit. n 15 at 58.

¹⁸ Ibid.

¹⁹ RG Noble vol. 4 at 58.

²⁰ Ibid.

Moreover, the legislation should provide that each handler of the hazardous waste retain his/her copy of the manifest in a permanent record open to inspection by the regulatory authority.²¹

In addition to the cradle to grave control measures mentioned above, it is submitted that a duty of care requirement, similar to that which is in operation in Britain should be incorporated into the legislation. The incorporation of such a requirement will ultimately place strict liability on the generator of hazardous waste and as such reduce the potential for risk considerably. 'Generators currently evaluate waste transporters and operators of waste facilities merely on the basis of cheapness without regard to health and environmental concerns. They also at times, give the operator and transporter insufficient of false information thus preventing them from fully evaluating the hazard o the situation.'²² If however, the generator remains liable, these dangers are likely to be reduced. I.e. 'the generators will almost certainly insist that transporters are better trained and follow all the necessary procedures.'²³

Yet another vital element, which cannot afford to be left out of the legislation, is public participation and public education. The public should be involved in the decision making process. As such public education programmes are urgently needed. I.e. there is at present a general lack of awareness, misconception as well as apathy in a wide spectrum of the general public in relation to hazardous waste.²⁴ The legislation should therefore provide for the establishment of a Hazardous Waste Clearing House, to be paid by the State, to answer any queries from the public and help make information on hazardous waste that might be of public concern as generally available as possible.²⁵ It is submitted that the benefits of this are obvious. Namely, an increase in public knowledge and participation will ultimately help ensure that results are achieved.

²¹ RG Noble vol. 3 at 27.

²² RG Noble vol. 5 at 57.

²³ Ibid.

²⁴ RG Noble vol. 3 at 46.

²⁵ RG Noble vol. 4 at 65.

Lastly, it is but common knowledge, that the management of hazardous waste will entail costs. However, given the current state of the economy and the political priorities that exist, using the State as the sole source of income for hazardous waste management is not very advisable. As such an alternative source of income needs to be generated in order to offset these costs.

It has been suggested that a possible solution would be to let industry bear the costs through the imposition of permit fees and fines. I.e. it has been suggested that fees should be charged for considering applications for permits and for the annual maintenance of permits granted to waste transporters and operators, moreover that these fees should exceed one half of the highest estimate of the total of all of the possible costs to the State.²⁶ It has also been suggested that fines should be imposed for non-registration, and that they should exceed three times the highest estimate of the total of all the costs, direct and indirect, that the offender might have incurred by registering at the first opportunity.²⁷ It is submitted that this suggestion is to be welcome. It creates an alternative source of income to offset the costs which would normally fall on the State, thereby making the management of hazardous waste more affordable in the long run.

In summary the recommendations that have been made in the above discussion are as follows:

- hazardous waste control in South Africa should be consolidated into one comprehensive Act;
- a single government department should be designated as the regulatory authority for hazardous waste in South Africa;
- a definition of hazardous waste should be included in the legislation;
- the legislation should furthermore provide for a cradle to grave control of hazardous waste – this should entail the identification of all the parties involved in hazardous waste, a notification requirement and a system of consignment notes (manifests) to

²⁶Noble op cit. n 25 at 43.

²⁷Ibid.

track the movement of hazardous waste from its place of origin to its ultimate resting place;

- In addition to the cradle to grave measures, the legislation should also provide for a duty of care requirement as well as public education and participation.

To conclude, this chapter has attempted to examine the improvements which can and ought to be made to our present and proposed legislation/regulatory measures governing the transportation of hazardous waste. If South Africa is to have an efficient and effective regulatory system governing the transportation of hazardous waste, these improvements need to be considered and incorporated into our law as soon as possible.

Chapter Eight

Conclusion

Hazardous waste is a very real issue that threatens both human health and the environment. It can cause immediate short term, public health problems as well as long term environmental pollution.¹ Of increasing concern worldwide however, is the transportation of hazardous waste. In particular, the road transportation of hazardous waste. I.e. it has been stated that the release rates associated with transporting hazardous wastes by truck appear to be as large as the potential releases at treatment and disposal sites.² Moreover, accidents are an ever-present possibility, thus perhaps making transportation an even more dangerous activity. Stringent effective and efficient controls, therefore, need to be in place.

Despite the inherent dangers involved in transporting hazardous waste by road and the need for effective and efficient controls, South Africa does not currently possess a coherent and effective system for regulating hazardous waste or its transportation.³ I.e. responsibility is diffused through different departments and depends on numerous Acts, regulations and guidelines.⁴ The transportation of hazardous waste in South Africa is thus controlled in a haphazard and uncoordinated manner.⁵

Moreover, the controls that are in place are far from adequate. I.e. there is no means of tracking hazardous waste. The current regulatory measures, i.e. the regulations governing the conveyance of hazardous substances⁶, issued under the Hazardous

¹ Rodger Batstone, James E Smith JR and David Wilson *The Safe Disposal of Hazardous Waste. The Special Needs of Developing Countries* Volume 1 (1989) at 3.

² National Research Council, United States Transportation Board *Transportation of Hazardous Materials* (1989) at 2.

³ RG Noble (Ed) *Hazardous Waste in South Africa* Volume 3: *Policy* (1992) Department of Environment Affairs CSIR: Pretoria at 1.

⁴ *Ibid.*

⁵ See DR Blanpan *International Encyclopaedia of Laws* Volume 3: *Environmental Law* at 110.

⁶ GN R 73 GG 9556 11 January 1985.

Substances Act⁷, merely regulate the transportation of dangerous substances in bulk form (i.e. consignments in excess of 500 litres), thereby excluding smaller tankers and transporters of packaged drummed goods from any form of regulation what so ever. Furthermore, the regulations issued under the Hazardous Substances Act⁸ merely require that drivers be aware of and have access to information regarding dangerous substances.⁹ While these regulations have been of assistance in reducing the consequences of accidents, they do little or nothing to prevent accidents from happening.¹⁰

In addition, it is important to note that although the Draft National Road Traffic Regulations¹¹, issued under the National Road Traffic Act¹², attempt to remedy the current shortcomings that exist in the present legislation/regulatory measures, i.e. they give legal status to the SABS Codes of Practice which in turn eliminate the 500 litre requirement, these regulations are as of yet merely draft regulations. Moreover the draft regulations fail to elaborate on and incorporate certain vital elements which are essential for the efficient and effective control of the transportation of hazardous waste. The proposed legislation/regulatory measures governing the transportation of hazardous waste in South Africa are thus still inadequate. New improved, efficient and effective control measures therefore need to be established.

South Africa, however, is in a fortunate position in that she may take the best control systems that are in operation elsewhere in the world and combine them to institute a system which is most suitable to her local conditions.¹³ As such the document has examined the control measures that are in operation in the United States, Britain and Australia.

The control measures that exist in Australia however appear to suffer from the same shortcomings as our own law and as such cannot be of further assistance. On the other

⁷ 15 of 1973.

⁸ GN R 73 GG 9556 11 January 1985.

⁹ 'Chemical Transportation, "Defusing those Time-Bomb Trucks"' (June 1998) *Chemical World* 10 at 10.

¹⁰ Jack Webster 'Placing the Regs where they belong' (Dec 1997) *FleetWatch* 67 at 67.

¹¹ GN 1520 GG 18383 27 October 1997.

¹² 93 of 1996.

hand Britain and the United States possess control measures that could greatly improve South Africa's present and proposed legislation/regulatory measures governing the transportation of hazardous waste. Both Britain and the United States have enacted extensive legislation to regulate the transportation of hazardous waste from cradle to grave. In both the United States and Britain, the parties involved in the transportation of hazardous waste are identified, an extensive manifest system is in place, a notification system exists as well as a duty of care requirement.

It is submitted that since an urgent need exists in South Africa, for an improved control system with regards to the transportation of hazardous waste, the control measures that are in operation in the United States and Britain should be considered and incorporated into our law. In addition all the present and proposed legislation/regulatory measures governing the transportation of hazardous waste should be consolidated into one comprehensive Act, which should include amongst other things, a comprehensive definition of hazardous waste and encourage public participation. In this way the present chaos that exists with regards to the numerous legislation and guidelines on the topic will be removed. Moreover, all the parties involved in the transportation of hazardous waste will be identified thereby allowing for more tighter controls, the transportation of hazardous waste will be able to be traced at all times thus preventing waste from "accidentally getting lost" or "disappearing", and finally, the participation of the public will ultimately help ensure that results are achieved.

Although 'a "good" environment is not the goal that is uppermost in the minds of the majority of South African people at present'¹⁴, i.e. the country's main concern at present appears to be the development of its economy, housing, education and the elimination of poverty. It is submitted that effective control over the transportation of hazardous waste is of paramount importance, not only for environmental protection but also for proper health. Far too many accidents involving hazardous waste have occurred on South African roads affecting not only the environment but also the public. If the improved

¹³ 'Hazardous Waste: A Highly Specialised Undertaking' (Nov/Dec 1992) 17:11 *IMIESA* 13 at 13.

measures, mentioned in the document, to control the transportation of hazardous waste are put on hold, this mismanagement will run the risk of leaving behind a legacy of expensive community health problems as well as excessive clean up costs. As such it is submitted that the establishment of an improved, efficient and effective control system needs to be considered as a matter of urgency.

It is important to note, that although improved, effective and efficient controls are urgently needed in South Africa, such controls will entail costs. Costs which cannot be placed on the State given the political priorities that exist at present. It is submitted however, that these costs could be offset by placing them in the hands of industry. I.e. through the imposition of fees and fines, revenue can be generated to support such controls and thereby reduce the costs which would normally fall on the State considerably. Ultimately making the management of the transportation of hazardous waste more affordable in the long run. Moreover, it is important to note that the advantages of introducing a new control system will very greatly outweigh the disadvantages. I.e. our roads will be safer – fewer accidents will occur, thereby reducing the risk of harm to the environment and public health as well as the excessive clean up costs.

✓ Considerable progress has been made in South Africa over the last 5 years, however, improved, controls, as identified and described in the document, are still needed if South Africa is to boast an effective and effective regulatory system. It is thus hoped that progress in this regard will be seen in the very near future. We have a moral duty and many economic reasons to eliminate the mismanagement and lack of control that exists at present over the transportation of hazardous waste both for ourselves and for the future well being and development of this country.¹⁵

¹⁴ RG Noble (Ed) *Hazardous Waste in South Africa Volume 5: Impact Assessment* (1992) Department of Environment Affairs CSIR: Pretoria at 107.

¹⁵ RG Noble (Ed) *Hazardous Waste in South Africa Executive Summary* (1992) Department of Environment Affairs CSIR: Pretoria at 5.

Bibliography

1. Books :

- * Blanpan DR *International Encyclopedia of Laws Volume 3: Environmental Law* (1991) Kluwer Law and Taxation Publishers Deventer Boston.
- * Ball S and Bell S *Environmental Law 2nd Edition* (1994) Blackstone Press Limited London.
- * Batstone R, Smith JE Jnr, Wilson D *The Safe Disposal of Hazardous Wastes. The Special Needs and Problems of Developing Countries Volume 1* (1989) The World Bank Washington D.C.
- * Bilitewski B, Hardtle G, Marek K, Weissbach A, Boeddicker H *Waste Management* (1994) Springer-Verlaag Berlin Heidelberg.
- * Birtles W and Stein R *Planning and Environmental Law 1st Edition* (1994) Longman Practitioner Series London.
- * Craffert FJ *Infrastructure and Procedures for Road Transportation of Dangerous Materials* (1994) Department of Transport Chief Directorate (National Roads) Pretoria.
- * Department of Water Affairs and Forestry *Minimum Requirements for the Handling and Disposal of Hazardous Waste* (1994) Waste Management Series.
- * Epstein SS M.D, Brown LO and Pope C *Hazardous Waste in America* (1982) Sierra Club Paperback Library San Francisco.

- * Findley RW and Farber DA *Environmental Law in a Nutshell* 4th Edition (1996) West Publishing Co Minnesota.
- * Findley RW and Farber DA *Cases and Materials on Environmental Law* 3rd Edition *American Casebook Series* (1991) West Publishing Company St. Paul Minnesota.
- * Fraser Alexander Group, Institute of Waste Management and Southern African Nature Foundation *Suggested Guidelines for the Transport and Disposal of Hazardous Waste. A Self Regulatory Approach* (1992) Pinegowrie.
- * Fuggle RF and Rabie MA (Eds) *Environmental Management in South Africa* (1994) Juta Cape Town.
- * Garbutt J *Environmental Law: A Practical Handbook* 2nd Edition (1995) Wiley Chancery London.
- * Goldman BA, Hulme JA, Johnson C Council on Economic Priorities *Hazardous Waste Management Reducing the Risk* (1986) Island Press Washington D.C.
- * Hawke *Environmental Health Law* (1995) Sweet and Maxwell London.
- * Hughes D *Environmental Law* (1986) Butterworths London.
- * Leeson JD *Environmental Law* (1995) Pitman Publishing London.
- * Malcolm R *A Guide to Environmental Law* (1994) Sweet and Maxwell London.
- * Mc Manus F *Environmental Health Law* (1994) Blackstone Press Limited London.

- * Miller EW and Miller R.M *Contemporary World Issues, Environmental Hazards: Toxic Waste and Hazardous Material* (1991) ABC-CLIO Inc Santa Barbara.
- * Noble RG (Ed) *Hazardous Waste in South Africa Executive Summary* (1992) Department of Environment Affairs CSIR: Pretoria.
- * Noble RG (Ed) *Hazardous Waste in South Africa Volume 1: Situation Analysis* (1992) Department of Environment Affairs CSIR: Pretoria.
- * Noble RG (Ed) *Hazardous Waste in South Africa Volume 3: Policy* (1992) Department of Environment Affairs CSIR: Pretoria.
- * Noble RG (Ed) *Hazardous Waste in South Africa Volume 4: Legislative Options* (1992) Department of Environment Affairs CSIR: Pretoria.
- * Noble RG (Ed) *Hazardous Waste in South Africa Volume 5: Impact Assessment* (1992) Department of Environment Affairs CSIR: Pretoria.
- * National Research Council, United States Transportation Research Board *Transportation of Hazardous Materials* (1986).
- * Porteous A *Hazardous Waste Management Handbook* (1985) Butterworths Boston.
- * Price B *Hazardous Waste Management: Technical and Legislative Prospects* (1993) Financial Times Business Information London.
- * Stensvaag JM *Hazardous Waste Law and Practice* (1986) Wiley Law Publications New York.
- * United States Environmental Protection Agency *The Nations Hazardous Waste Management Program at a Crossroads The RCRA Implementation Study* (1990).

- * Wagner TP *The Hazardous Waste Q & A, An in-depth Guide to the Resource Conservation and Recovery Act and the Hazardous Materials Transportation Act* (1990) Van Nostrand New York.
- * Wentz CA *Hazardous Waste Management* (1989) Mc Graw-Hill International Editions New York.

Journals, Articles and Other:

- * 'Chemical Transportation, "Defusing those Time-bomb Trucks"' (June 1998) *Chemical World* 10.
- * GN 453 25 March 1977.
- * GN R 73 GG 9556 11 January 1985.
- * GN 1520 GG 18383 27 October 1997.
- * Halsted SN Senior Divisional Officer of the Pietermaritzburg Fire and Emergency Services Personal Conversation 16 November 1998.
- * 'Hazardous Waste: A Highly Specialized Undertaking' (Nov/Dec 1992) 17:11 *IMESA* 13.
- * <http://fwebgate2.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID> (40 CFR and 49 CFR).

- * Milham T Stanway Edwards Ngomane Associates (Pty) Ltd. Personal Correspondence 25 November 1998.
- * Parker A 'A FleetWatch Initiative Indaba Dangerous Goods' (May 1998) FleetWatch 60.
- * Rtrga1998.202.txt at www.austlii.edu.au (Commonwealth Road Transport Reform (Dangerous Goods) Regulations 1998).
- * SABS 0228:1996
- * SABS 0229:1997
- * SABS 1518:1996
- * SABS 0230:1997
- * SABS 0231:1997
- * SABS 0232:1995
- * SABS 0252/1:1994
- * 'Transporting Hazardous Waste: What are the issues' (Aug 1995) *Municipal Engineer Resource Supplement 4*.
- * VKE Engineers *Report on the Cost Implications of the Incident on N3/2 at km 7 on 1 May 1996*.
- * Webster J 'Placing the Regs where they Belong' (Dec 1997) FleetWatch 67.