

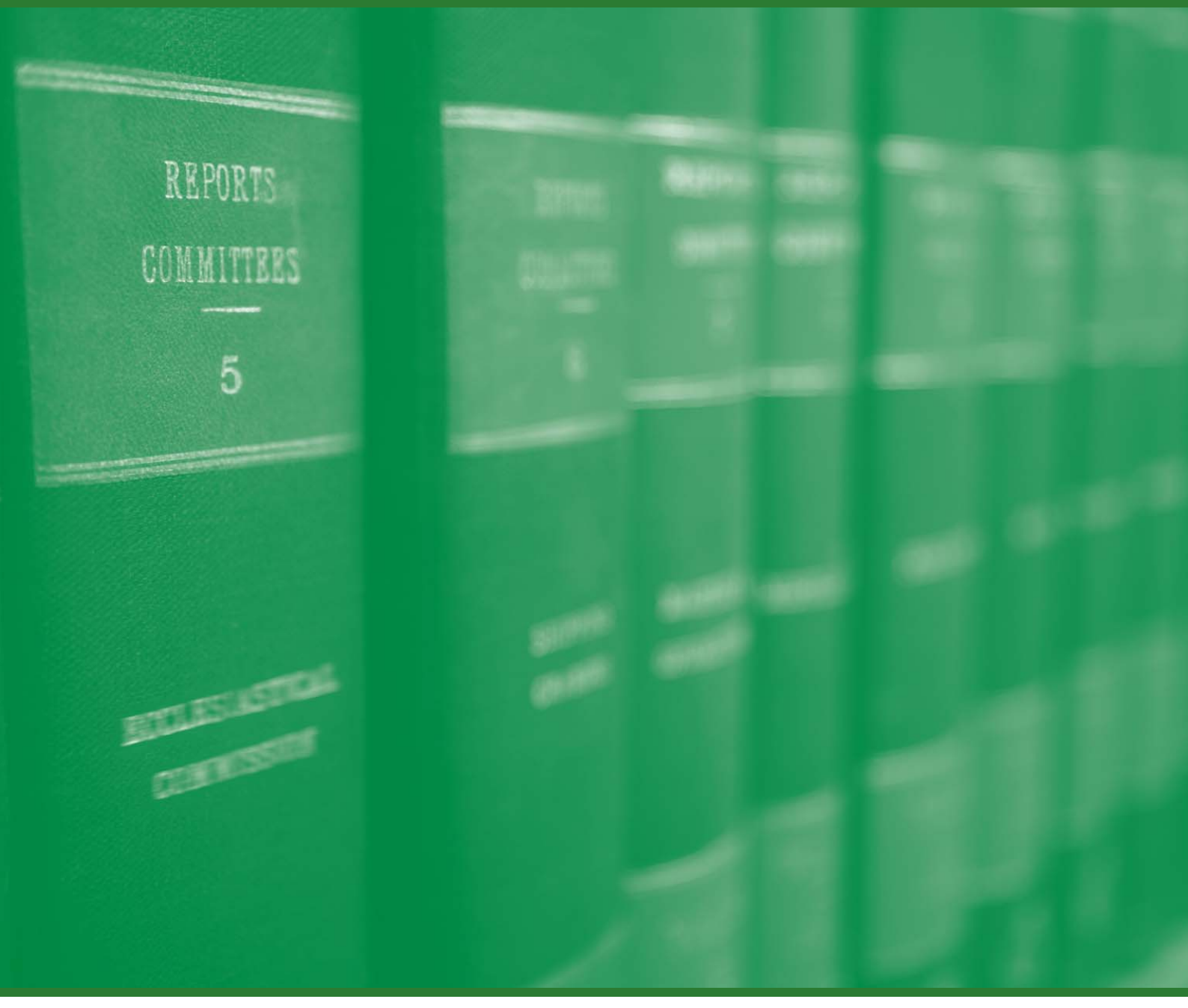


LEGISLATIVE ASSEMBLY OF NEW SOUTH WALES

## Committee on Environment and Regulation

REPORT 1/55 – NOVEMBER 2012

### INQUIRY INTO THE REGULATION OF DOMESTIC WASTEWATER



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The motto of the coat of arms for the state of New South Wales is "Orta recens quam pura nites." It is written in Latin and means "newly risen, how brightly you shine."

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# Membership

|                 |  |
|-----------------|--|
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## Chair's Foreword

It gives me great pleasure to present this first report of the Legislative Assembly Committee on Environment and Regulation, on the Inquiry into the Management of Domestic Wastewater.

When people flush the toilet or pull the plug in their kitchen sink, they most likely give very little thought to where the wastewater goes and how it is treated. For people living in urban areas, wastewater is generally taken off-site and treated at large, centralised sewerage treatment plants. However for residents of less densely populated areas, the wastewater may very well remain and be treated on-site.

When on-site domestic wastewater systems work well, they provide a very safe and effective method of decontaminating wastewater and returning the treated effluent to the land. However, when on-site domestic wastewater systems fail or are used in a manner contrary to recommended guidelines, there are risks of serious ill health for people and environmental consequences.

This Inquiry was prompted by ongoing concerns about poor standards of installation and maintenance of domestic wastewater systems, along with inadequate inspection and monitoring procedures, potentially leading to a serious contamination event. While in New South Wales we have been fortunate not to have seen the sort of severe contamination events seen elsewhere in the world that have caused widespread disease outbreak, the Committee found that there is room for improvement and as such has made eighteen recommendations in this report.

The Committee gathered evidence from a wide range of stakeholders, including local government authorities, academics, representatives of the domestic wastewater industry and representatives of the industry that is most vulnerable to the risks of faulty domestic wastewater systems – the oyster industry.

The Committee recognises that the State's oyster farmers must bear the cost of monitoring for contaminants caused by activities that they have no control over, and they must also bear the consequences of contamination events. In terms of monitoring for the presence of contaminants, the Committee supports the work of the *NSW Shellfish Quality Assurance Program* and encourages the exploration of new testing methodologies. The Committee also encourages the continued liaison between the oyster industry and the NSW Food Authority.

The Committee heard that while most owners of on-site domestic wastewater systems are compliant in their usage, there are others in the community who misunderstand the risks of using effluent on crops as a form of fertiliser. This appears to affect small-scale horticulture operations. For this reason, the Committee recommends that information be made available for local government authorities to distribute that would provide information about the environmental and health risks associated with applying untreated effluent to food crops.

The guidelines that help local government authorities to oversee the management of on-site domestic wastewater systems were developed fifteen years ago. A key area of concern expressed by inquiry participants was that the guidelines require updating to reflect the developments and improvements in on-site wastewater management technology and to

reference the superior Australia/New Zealand Standard for on-site domestic wastewater management. The Committee made three recommendations in this respect.

Another major area of concern expressed by inquiry participants was the lack of formal training qualifications or standard inspection procedures for certain on-site domestic wastewater systems. For this reason the Committee recommends the development of uniform accreditation and reporting system.

Throughout the course of the inquiry it became apparent that local government authorities would greatly benefit from an improved regulatory framework to clarify and expand upon their existing powers to seize crops or require owners to comply with clean up orders. The Committee made four recommendations in this area, including recommendations for legislative amendments.

Some local government areas are better than others at managing on-site domestic wastewater systems, so the Committee has made recommendations to encourage local councils to share examples of best practice. In addition, the Committee backs the revival of the Septic Safe Program and the reconstitution of the Wastewater Management Advisory Committee.

I believe that the recommendations made in this report will provide for greater protection of public health, minimise risks to the environment and enhance the critical role that local government authorities perform in managing and regulating on-site domestic wastewater systems.

**Chris Patterson MP**  
Chair

# List of Recommendations

- RECOMMENDATION 1 \_\_\_\_\_ 22
- The Committee supports the work of the *NSW Shellfish Quality Assurance Program* and encourages further and continuous testing of waterways where oysters are harvested. In addition, the Committee encourages the exploration of new testing methods to consider different risks to oysters, including viruses and heavy metals.
- RECOMMENDATION 2 \_\_\_\_\_ 23
- The Committee recommends that the NSW Food Authority continue to liaise with oyster farmers and be receptive to comments by the oyster industry with respect to advancements in estuarine testing, depuration processes and other issues that they confront.
- RECOMMENDATION 3 \_\_\_\_\_ 26
- The Committee recommends that the Division of Local Government provide information about the environmental and health risks associated with applying untreated effluent to food crops. The Committee further recommends that this information be available in a number of community languages and be distributed to local government authorities who have recognised this as a problem in the area.
- RECOMMENDATION 4 \_\_\_\_\_ 28
- The Committee recommends that the *Food Act 2003* be amended to include 'unharvested crop' under the definition of 'food' where the unharvested crop is food intended for human consumption.
- RECOMMENDATION 5 \_\_\_\_\_ 28
- The Committee recommends that the Food Authority more actively engages with councils who suspect and report crop contamination to monitor, investigate and, where appropriate, confiscate food from operations where food contamination is likely to have occurred.
- RECOMMENDATION 6 \_\_\_\_\_ 28
- The Committee recommends that an expert panel considers whether councils and any service provider has a duty to report to the Food Authority where it becomes aware that a food crop has, or has potentially, become contaminated.
- RECOMMENDATION 7 \_\_\_\_\_ 33
- That Committee recommends that, in light of technological improvements and other changes in sewage management in the past 15 years, a panel made up of technical and or professional experts, State and Local Government representatives, and non-Government representatives be convened to conduct a review to update and publish the *Environment and Health Protection Guidelines: On-Site Sewage Management of Single Households*, and that the review commence as a matter of priority.
- RECOMMENDATION 8 \_\_\_\_\_ 34
- The Committee recommends that the expert panel consider the best means of improving enforceability of the *Environment and Health Protection Guidelines: On-Site Sewage Management of Single Households* (Silver Book).



## RECOMMENDATION 9 \_\_\_\_\_ 36

The Committee recommends that reference to the Australia/New Zealand Standard AS1547:2012 is included in the revised *Environment and Health Protection Guidelines: On-site Sewage Management of Single Households* where there are gaps in the Silver Book, and where it is appropriate, that the Standard covers the field. The Committee further recommends that appropriate edits or deletions are made to the Silver Book to minimise overlap and duplication.

## RECOMMENDATION 10 \_\_\_\_\_ 38

The Committee recommends that the *Local Government Act 1993* be amended to insert a provision under section 124 that would enable local government authorities to make specific orders with respect to on-site sewage management systems.

## RECOMMENDATION 11 \_\_\_\_\_ 40

The Committee recommends that the penalty for breaches of Orders with respect to on-site sewage management systems be raised to act as a more powerful disincentive against breaches of the Order. The Committee does not propose a specific penalty, but instead asks the Government to consider more appropriate penalties, and requests that changes to the *Fines Act 1997* be made to effect the penalty increase.

## RECOMMENDATION 12 \_\_\_\_\_ 42

The Committee recommends that the *Protection of the Environment Operations Act 1997* be amended to include pollution incidents which are caused, or suspected to be caused, by on-site sewage management systems be included as a type of pollution incident that councils have the power to compel clean-up and prevention orders on, and to which there is an obligation to report the incident to the appropriate regulatory authority.

## RECOMMENDATION 13 \_\_\_\_\_ 45

The Committee recommends that a formal licensing system be developed and introduced for the installation and maintenance of on-site sewage management systems, including appropriate training courses, accreditation processes, and performance audits. This should include the means by which councils can issue an infringement notice to the manufacturers and/or installers for faulty manufacturing and/or installation, for an appropriate, specified time.

The Committee recommends that industry oversight of the installation and maintenance of on-site sewage management systems be referred to NSW Fair Trading.

## RECOMMENDATION 14 \_\_\_\_\_ 46

The Committee recommends that Fair Trading or the Division of Local Government develop a common reporting standard and template to be submitted through a State Government electronic portal and that the reports should be filed on a common database. Any such database should be accessible by all councils.

## RECOMMENDATION 15 \_\_\_\_\_ 47

The Committee recommends that NSW Health reconvene the Wastewater Management Advisory Committee, or a similar body, and ensures that membership of that Committee is comprised of appropriate Government authorities and other stakeholders.

**RECOMMENDATION 16** \_\_\_\_\_ **50**

The Committee recommends that the Division of Local Government produces guidelines to assist councils to develop sewage management plans, with a particular emphasis on post-inspection protocols when a system is found to require repairs or upgrades.

**RECOMMENDATION 17** \_\_\_\_\_ **51**

The Committee recommends that local councils cluster in regional groups, such as through the Regional Organisation of Councils, to exchange ideas and collaborate on joint projects with respect to the management of sewage systems in the regional area, using the Septic Tank Action Group as a model.

**RECOMMENDATION 18** \_\_\_\_\_ **52**

The Committee recommends that the Division of Local Government revives the Septic Safe Program with a view to ensuring councils are appropriately funded to carry out their services and responsibilities with respect to on-site sewage management.

# Glossary

|                                   |  |
|-----------------------------------|--|
| Absorption                        | The uptake of effluent into the soil   |
| Absorption trench                 | A method of dispersing effluent using absorption   |
| Adsorption                        | The accumulation of molecules of a gas to form a thin film on the surface of a solid   |
| Aerobic treatment                 | Treatment that uses bacteria in the presence of oxygen to break down waste   |
| Adsorption                        | A concentration of molecules on soil particles   |
| Amended soil system               | An ancillary treatment where soil shaped into a mound filters and disperses effluent   |
| Ancillary treatment               | An optional system to further improve effluent quality. Ancillary treatment systems do not require certification by NSW Health |
| Anaerobic treatment               | Treatment that uses bacteria without oxygen present to break down waste  |
| AWTS                              | Aerated Wastewater Treatment System: a system that uses aerobic treatment to biologically treat wastewater                     |
| Blackwater                        | Wastewater grossly contaminated with human excreta, for example toilet wastewater  |
| Buffer distance<br>Or buffer zone | The distance required between a wastewater treatment area and environmentally sensitive features                               |
| Common effluent system            | An off-site sewage management facility   |
| Compost                           | Solids arising from the wastewater treatment process   |
| Constructed wetlands              | Artificial wetlands created to act as a filter for effluent that has had secondary treatment applied                           |
| Depuration                        | A process of treating oysters to remove impurities   |
| Desludging                        | Removing scum and sludge from a tank   |
| Disinfection                      | Treatment of wastewater to destroy or reduce pathogens to an acceptable level  |
| Domestic wastewater               | Wastewater generated by human activity in a residential setting  |
| Dry composting system             | A treatment system that breaks down the solid component of wastewater through composting                                       |
| Effluent                          | The liquid discharged from a wastewater management system  |
| EPA                               | Environment Protection Authority   |
| EP & A Act                        | Environmental Planning and Assessment Act 1979   |
| Escherichia coli                  | Bacterium found in the gut and faeces of people and animals. Water is tested for   |

|                                      |  |
|--------------------------------------|--|
| (E. coli)                            | the presence of E. coli as it is indicative of faecal contamination  |
| Eutrophication                       | An excess of the nutrients nitrogen and phosphorous in water   |
| Greywater                            | Wastewater from the laundry, kitchen, bath and shower  |
| Groundwater                          | Water beneath the surface of the earth   |
| Human excreta                        | Human products such as faeces and urine  |
| Humus                                | Solids arising from the wastewater treatment process   |
| Land application area                | An area that treated waste is dispersed over; by either surface or sub-surface irrigation  |
| LGA                                  | Local government area  |
| LG Act                               | <i>Local Government Act 1993</i>   |
| Nutrients                            | Chemical elements essential for growth, including nitrogen, phosphorous and potassium. Excess nutrients are toxic to both plants and animals   |
| OWMS                                 | On-site wastewater management systems  |
| OSSM                                 | On-site systems of sewage management   |
| OSMS                                 | On-site sewage management systems  |
| Pathogens                            | Disease producing organisms including bacteria, protozoa and viruses   |
| PINs                                 | Penalty Infringement Notices   |
| POEO                                 | <i>Protection of the Environment Operations Act 1997</i>   |
| Primary treatment                    | Collection of waste, then separation of solid and liquid content of waste  |
| Recirculating aerobic filter devices | Treatment of effluent by percolation through graded sand   |
| Sand mound                           | A mound of sand that filters and treats effluent   |
| Secondary treatment                  | Reduction of bacterial and biological pathogens in primary treated waste   |
| Septic tank                          | A treatment device that treats wastewater through settlement of solids into sludge and anaerobic digestion   |
| Septic system                        | A two stage treatment system comprised of a septic tank and some form of secondary treatment. Any kind of system that stores, treats or discharges sewage on or adjacent to the premises on which it was generated |
| Sewage                               | The waste matter that passes through sewers  |
| Sewerage                             | The removal of wastewater and refuse by means of sewers  |
| SCA                                  | Sydney Catchment Authority   |
| Scum                                 | Fat and grease that rise to the top of wastewater tanks  |
| Sludge                               | Semi-liquid solids that settle in wastewater tanks   |

## INQUIRY INTO THE REGULATION OF DOMESTIC WASTEWATER

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|                       |  |
|-----------------------|--|
| Surface water         | Water on the surface of the earth such as dams, creeks, rivers and the ocean                     |
| Tertiary treatment    | Further reduction of bacterial and biological pathogens through disinfection of treated effluent |
| Turbidity             | Cloudiness of water caused by suspended particles  |
| Wastewater            | Water that has been used and that contains waste products such as human excreta                  |
| Wet Composting system | A treatment that breaks down both the solid and liquid components of waste through composting    |

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# Chapter One – Introduction

## Introduction

- 1.1 The Committee on Environment and Regulation is a current standing Committee of the Legislative Assembly, established on 22 June 2011. The following portfolio responsibilities stand referred to the Committee: environment; heritage; small business; local government; fair trading; primary industries; resources and energy; and the north coast.
- 1.2 As with equivalent portfolio Committees, the terms of reference of the Committee on Environment and Regulation enable it to examine, inquire into and report on matters related to portfolio areas within its remit. These matters may be referred to the Committee by the House, or may be self-referred.
- 1.3 The Committee referred itself an inquiry into the management of domestic wastewater on 18 October 2011. The Committee subsequently adopted terms of reference as follows:
- That the Committee inquire into the regulation of domestic wastewater with particular reference to:
- (a) The adequacy of safeguards to ensure food safety, and to protect against the risk of localised contamination in food production areas;
  - (b) The appropriateness of current regulatory arrangements in relation to the management of domestic wastewater;
  - (c) The adequacy of inspection procedures and requirements to report incidents; and
  - (d) Any other related matter.
- 1.4 The Inquiry was prompted by ongoing concerns about the adequacy of regulation concerning on-site sewage management systems and associated wastewater treatment processes. Particular concern was raised about the possible contamination from leaky systems on local horticulture and aquaculture, and associated risks to public health.
- 1.5 The Committee was also concerned about regulations that may need to be adopted or enhanced, accreditation requirements for service technicians that could be introduced, and inspection processes that should be strengthened, to ensure a more comprehensive regulatory approach to managing onsite sewage systems.

## Conduct of the Inquiry

### Submissions

- 1.6 The Committee made a public call for submissions on 4 November 2011 by writing directly to key stakeholders, including local government authorities, rural

community organisations, key government departments and agencies, and other potentially interested parties. The Committee also advertised the Inquiry on the Parliament's website, and received some coverage in community publications.

- 1.7 In total, the Committee received 32 submissions from a broad range of sources. This includes local government authorities, representatives from the oyster industry, other industry associations, academics, consultants and industry professionals. A full list of the submissions received can be found at Appendix One and copies of the submissions are available on the Committee's webpage.

### **Public Hearing and Briefings**

- 1.8 The Committee informally met with representatives from both Camden Council in December 2011 and the NSW Farmers' Association in January 2012 to receive a briefing on pertinent issues facing rural and semi-rural communities with respect to the impacts of faulty sewage systems on local horticulture and aquaculture.
- 1.9 As a formal part of the Inquiry, the Committee held a public hearing at Parliament House, Sydney on Thursday 22 March 2012. The Committee received evidence from 18 witnesses representing 13 organisations, each of which had previously made a submission to the Inquiry.
- 1.10 The public hearing gave the Committee an opportunity to further explore some of the issues raised in the submissions and examine options available to minimise the number of faulty sewage management systems in operation, and associated impacts on the environment. A full list of witnesses who appeared before the Committee can be found at Appendix Two. Transcripts of the evidence provided are also available on the Committee's webpage.

### **Overview of the Report**

- 1.11 This report has been organised in Five Chapters. Chapter Two details the basic mechanics of an on-site sewage management system, and explores the different types of systems in operation.
- 1.12 Chapter Three considers the risks posed by contamination from faulty sewage systems, in particular the biological and chemical impacts on local waterways, and attendant impacts on oysters, fish, crops and other food products in contact with contaminated water.
- 1.13 Chapter Four considers the current regulatory arrangements and identifies possible methods of improvement or additional rigour that is required, including updating current regulations and guidelines, requiring the accreditation of industry professionals, refining inspection procedures, increasing fines and expanding or clarifying seizure powers.
- 1.14 Chapter Five examines non-regulatory approaches, such as cooperative ventures by neighbouring councils, fee schedules for landowners, education and assistance programs.
- 1.15 As appropriate, this report includes relevant case studies, particularly with respect to the impacts of sewage contamination on oyster production and other



aquaculture industries. Where relevant, recommendations for both the NSW Government and local government authorities are provided.

- 1.16 Through the submissions and evidence at the public hearing, and together with additional research from a wide variety of sources, the Committee has developed 18 key recommendations. Reflecting the overriding objective of this Committee, these recommendations, if implemented, are intended to minimise the incidence of sewage systems faltering, mitigate the impacts when they do, and ensure an appropriate regulatory infrastructure exists to prevent recurrence.
- 1.17 The purpose of this report is not to suggest that on-site sewage management systems are inherently dangerous and that the problems are entrenched and systemic. The evidence indicates that contamination events are the exception, not the rule, and that with proper maintenance and use, these systems perform critical functions in removing the problems to public health and the environment, rather than creating them.
- 1.18 However, the evidence also suggests that there have been gaps in the oversight of the holistic operation of these systems, and that over time, various problems have emerged that require immediate attention. This report aims to identify some of those problems with a view to recommending possible courses of action to mitigate the risk, and maximise the protections.
- 1.19 This report does not discuss the technical specifications of on-site sewage management systems, the detail of which is highly complex and beyond the scope of this Inquiry. As such, this Inquiry is limited to identifying broader issues with respect to the holistic governance of such systems. Further explanation of the terms commonly used throughout this report can be found in the Glossary.

## Chapter Two – Sewage Systems: Installation, Treatment and Disposal

- 2.1 This Chapter identifies the various installation, treatment and disposal methods of onsite sewage management systems. It also examines the various design protocols to be considered to ensure environmental health and safety.

### On-site Sewage Management Systems

- 2.2 An on-site sewage management system, often referred to simply as a 'system' or sometimes by the acronym 'OSMS', is a system designed to treat and dispose of effluent on or near the same property in which it is produced. That is, unlike the reticulated sewerage systems of urban environments which are integrated systems of pipes, tunnels and treatment plants, on-site sewage management systems are independent of any centralised system.
- 2.3 On-site sewage management systems involve the treatment of wastewater and the controlled release of its treated liquid by-products, together with solid products, into the environment.
- 2.4 These systems are not new, and have evolved from pit privies used throughout history to modern installations able to produce disinfected effluent to a level fit for human consumption.<sup>1</sup> Although such high effluent quality is not generally required, the ability for such systems to remove and dispose of sludge, scum, nutrients and pathogens is imperative to protecting environmental resources, public health and local industries.
- 2.5 The untreated release of sewage, or improper treatment of wastewater, can have significant and widespread impacts. These include:
- (a) The spread of communicable diseases by pathogens found in sewage, including e-coli and hepatitis, as well as transmission of other organisms, such as fungi and protozoa;
  - (b) Water contamination, affecting its quality for consumption, irrigation and recreational purposes;
  - (c) The degradation of soil and vegetation, compromising the integrity of local agriculture and horticulture;
  - (d) Contaminated aquaculture, including fish and oysters;
  - (e) Decreased community amenity, caused by odour, unsightliness, noise, and vermin; and
  - (f) Decline of, or hindrance to the development of, recreational, sporting and tourism industries at a local level.

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<sup>1</sup> *On-site Wastewater Treatment Systems Manual*, Office of Water, U.S. Environmental Protection Agency, February 2002 at p1

2.6 Up to twenty percent of households in regional NSW are not connected to reticulated sewerage systems and utilise on-site sewage management systems to dispose of wastewater.<sup>2</sup> That is, they are not connected to centralised sewerage facilities run by Sydney Water, Hunter Water or other major providers. One of the key reasons for this is remoteness. This in turn can be due to a couple of factors:

- a) Distance: Generally, the further a property is from a main population centre, the greater the likelihood that reticulated sewerage services cannot be provided; and
- b) Natural Barriers: Remoteness can exist through natural barriers preventing connection to a reticulated system that it would otherwise be proximate to (such as waterways surrounding islands).

In these circumstances, a local government authority may not be in a position to provide reticulated sewerage services, given the lack of existing capacities through infrastructure limitations, and where building additional infrastructure would be considered cost prohibitive. In most cases, these property owners will need to install and use an on-site sewage management system for its domestic wastewater needs.

2.7 There are other reasons why properties will have on-site systems. This includes where property owners want to manage and possibly reuse their own waste, rather than discharge to the sewer. Another reason is that waste is sometimes not able to be discharged to either the sewer or the environment. These are generally commercial or industrial wastes.

2.8 Although precise figures are difficult to determine, it is estimated that there are more than one million of these systems in operation in Australia.<sup>3</sup> As expected, there is no localised concentration of these systems, and they are used across more remote areas Australia-wide.

2.9 Wastewater may be classified as blackwater, greywater or a combination of the two. Blackwater essentially refers to toilet waste, and is grossly contaminated with human excrement. Greywater generally refers to all other waste, including wastewater from the laundry, kitchen and bath or shower.<sup>4</sup>

2.10 The reason this distinction is made that, although many systems treat both grey and blackwater together, it is also possible to treat them separately. Treated greywater has reuse potential for toilet flushing and garden watering.

2.11 On average, blackwater constitutes between 15% and 35% of all domestic wastewater flow, with the remaining 65% - 85% of wastewater flow comprising greywater. Once all wastewater has been treated, the treated liquid is known as treated effluent and the treated solids are known as compost or humus.

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<sup>2</sup> Division of Local Government, *The Easy Septic Guide*, [www.dlg.nsw.gov.au/ssfpub.htm](http://www.dlg.nsw.gov.au/ssfpub.htm)

<sup>3</sup> Gardener E, Vieritz A & Beal C, *Are on-site systems environmentally sustainable?* Water 33(1) February 2006, pp 36–46

<sup>4</sup> *On-site Sewage Management for Single Households*, Division of Local Government

- 2.12 There are two broad stages to on-site sewage management – treatment and disposal. Wastewater requires varying levels of treatment depending on the intended use of the post-treatment effluent, and the sensitivity of the site. Within the treatment stage, waste may be treated to primary, secondary or tertiary standard. Broadly put, these standards include:
- Primary treatment – this involves the collection of waste, then separation of solid and liquid content of waste. This level of treatment is often sufficient if the waste is disposed through burial;
  - Secondary treatment – this involves the reduction of bacterial and biological pathogens. This level of treatment is generally required for subsurface irrigation (see below);
  - Tertiary treatment – this involves the further reduction of bacterial and biological pathogens through disinfection of treated effluent. Applying tertiary treatment gives land owners more options for dispersing the treated effluent on their land, including surface irrigation (see below);
  - Ancillary treatment – an optional system to further improve effluent quality. Ancillary treatment systems do not require certification by NSW Health.

Some on-site management systems allow for primary, secondary and tertiary treatment in one device, others require separate devices or systems.

- 2.13 The level of treatment of the wastewater will determine the degree to which disposal can be achieved over a land application area. Land application involves the dispersion of treated effluent and humus to vegetated land, either through burial or irrigation above ground or below, in a vicinity near the treatment system.
- 2.14 All treatment devices that are available for retail purchase in New South Wales must be accredited with NSW Health under clauses 40 and 41 of the *Local Government (General) Regulation 2005*. Accreditation does not apply to drains connected to the facility nor to any land application system. A full register of providers that hold certificates of accreditation are available from the NSW Health website.<sup>5</sup> Local councils must approve the installation, taking into consideration site specific factors such as daily wastewater loads, as well as localised geographic and geological factors.

## Types of Systems

- 2.15 There is a large variety of on-site systems, with preferences varying depending on site selection and appropriateness, as well as cost.

### *Septic Tanks*

- 2.16 Although introduced in the 1920s, septic tanks became more popular following the Second World War. Initially, they were designed for rural residences where there was sufficient space for the septic tanks to be installed and for the effluent

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<sup>5</sup> [http://www.health.nsw.gov.au/publichealth/environment/water/waste\\_water.asp](http://www.health.nsw.gov.au/publichealth/environment/water/waste_water.asp)

to be disposed of nearby. Given the advancements with septic tanks, they became a popular alternative for cesspits, which are mere ground chambers for sewage. Septic tanks also proved a popular interim measure in urban environments before the installation of centralised sewerage systems.

- 2.17 Septic tanks receive all blackwater and greywater waste from a household. The tank is usually situated underground. They are sub-surface watertight chambers that provide preliminary treatment for the entire wastewater stream. The process works by allowing the wastewater that enters the tank to form into parts, with the sludge to settling to the base, and scum floating at the surface. The term 'septic' comes from the fact that treatment relies on anaerobic (without oxygen) bacterial digestion of the stored solids to produce sludge.
- 2.18 The resultant effluent is then transported to either an on-site application or offsite. Not all solids are broken down in a septic tank and the tank will need to be 'desludged' approximately every three years.
- 2.19 A key feature of septic tanks is that they neither remove nutrients nor is the wastewater disinfected. Given this, the bacterial numbers in septic tank effluent are roughly ten times that found in raw sewage. Sewage treatment in septic tanks merely reduces the solids content of the waste water and increases the bacterial numbers in the final effluent. Typical sewage has about 1 million bacteria per millilitre, while septic tank effluent has about 10 million bacteria per millilitre.<sup>6</sup> As such, it is important that the effluent is discharged into the soil at an appropriate distance from both surface water and groundwater.
- 2.20 The design criteria for domestic septic tanks and collection wells are specified in *AS/NZS 1546.1:2008 on-site domestic wastewater treatment units – Septic tanks*. All septic tanks and collection wells must be licensed with Standards Australia before they can be certified by NSW Health.
- 2.21 Septic tanks are also one of the simplest types of sewage treatment. They do not require electricity to run or have moving parts which break down. As such, they are by far the most popular form of on-site system in Australia, with many councils advising the Committee that septic tanks form the overwhelming majority of on-site sewage management systems in operation.

### *Aerated Wastewater Treatment Systems*

- 2.22 An aerated wastewater treatment system ('AWTS') uses aerobic treatment to breakdown blackwater and greywater waste from a household to a tertiary standard. The aim of an AWTS is to treat the effluent to a level that is suitable for irrigation. To achieve this, the wastewater needs to undergo a number of processes that essentially render AWTS as mini sewerage treatment plants.
- 2.23 First, wastewater enters the primary chamber and solids settle as a sludge layer to the bottom, while fat and grease rise to the surface as a scum layer. Wastewater continues to occupy the bulk of matter between these two layers.

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<sup>6</sup> *Sewage Management Facility Accreditation Criteria Based on the Final Application of Treated Effluent and Risk of Disease Transmission*, NSW Health, Advisory Note 4, 2008

- 2.24 In the second stage, the partially clarified wastewater flows into a second chamber where the water is aerated. Bacteria that are present consume the organic material through oxidation. Oxygen is supplied into an aeration chamber by a pump and air diffusers. The aerobic process enables bacteria to convert ammonia into nitrites, and then nitrates.
- 2.25 In the third stage, wastewater is further clarified, with solids returned to the primary chamber for retreatment. In this process, effluent is sent to the disinfection chamber before it can be used for surface irrigation over a land application area.
- 2.26 Disinfection removes the pathogens that can be attributed to localised contamination and disease. The main methods of disinfection include either chlorination, simply by depositing a tablet into an erosion feeder, or through ultraviolet irradiation. As chlorine has a corrosive effect on the metal parts of systems, damage or degradation of metal parts is a risk.
- 2.27 A register of AWTS' providers certified with accreditation is available from the NSW Health website. Further advisory notes on AWTS installation and management is also provided for by NSW Health under Part 4, Clause 43(1) *Local Government (Approvals) Regulation 1999*.
- 2.28 AWTS appear to be the second most common form of on-site sewage management systems in use in Australia, following septic tanks, and its use is predominant in newer properties.

### *Composting Toilets*

- 2.29 Composting toilets are used to treat human excreta through a process of composting by microorganisms to produce humus. Dry composting systems only take toilet waste where no water is used in flushing, and aim to provide the right moisture and temperature conditions to encourage bacterial growth. Although the majority of composting toilets are dry, some are wet and use worms in facilitated biological processes.
- 2.30 Dry composting systems treat solid waste to a secondary standard but do not treat liquid waste, such as greywater, and an additional system will be required for this.
- 2.31 For these systems, the blackwater is collected in a sealed chamber beneath a toilet pedestal. The action of microorganisms and oxygen break down the excreta into carbon dioxide, water and humus. The breakdown process takes at least 12 months. Resultant carbon dioxide is released through an air vent, while water is removed and treated with other household greywater.
- 2.32 Additional organic material such as food scraps or lawn clippings may be added to dry composting systems to promote the right conditions. When moisture levels get too high, odour can be a problem, and the addition of newspaper or sawdust will help in absorbing the excess moisture and thus minimising foul odour.

- 2.33 Meanwhile, the mechanical components of wet composting systems are fairly simple, and generally only require two pumps. Filtered wastewater is collected at the base of the chamber and is drained to either a secondary treatment system or over a land application area.
- 2.34 The humus produced by both wet and dry composting toilets cannot be taken offsite unless special permission is sought from local council. Generally, the humus is buried, with at least 75mm of soil covering it. Compost must not be buried in an area used for the cultivation of crops unless it is first seasoned in a composting bin or underground for a further three months. After three months seasoning, the composted humus may be used in the garden, but not for the production of crops that are consumed raw.
- 2.35 There are various design and installation requirements for composting toilets. In particular, a composting toilets performance can be affected by cold climatic conditions. Ventilation is also a significant consideration and, as most compost toilets are designed to sit under the dwelling which it services, accessibility to the composting unit is pivotal.
- 2.36 NSW Health provides a Waterless Composting Guideline under Part 4, Clause 43(1) *Local Government (Approvals) Regulation 1999*. The objectives of this guideline are to provide performance statements which define requirements for a composting toilet, provide performance evaluation, and provide details for manufacturers to enable product accreditation.

### *Pump-Out System*

- 2.37 A pump-out system is essentially a collection tank that stores wastewater until it is pumped out and taken to a sewage treatment plant. Collection wells are generally large enough to contain seven days' daily flow for a weekly pump-out.
- 2.38 A pump-out system is generally considered an option of last resort and should only be used as a short term measure. It is generally not considered a viable option in the long-term because of widespread misuse or inappropriate discharges, such as the siphoning of untreated effluent into street drains and gardens.

### *Pit Toilets*

- 2.39 Pit toilets consist of a toilet pedestal situated over an underground pit. Human excrement is collected in the pit and micro organisms break this down over time. Pit toilets use similar principles to dry composting toilets to break down their contents, but pits are generally dug straight into the ground and the resultant humus is not collected. Rather, once the pit is full, the top will be covered over with soil and a new pit will be built.
- 2.40 Pit toilets are effective in remote locations that pump out trucks may find inaccessible. They are generally only useful where use will be intermittent, for example isolated campsites. There are currently no guidelines or regulations in place to assist with appropriate site selection or design of pit toilets.

## Ancillary Treatment Systems

- 2.41 In addition to basic treatment standards, ancillary treatment systems are not certified by NSW Health, but landowners may choose to use them to further reduce pollutant and or nutrient levels in treated effluent. This includes sand mounds, amended soil systems, construction wetlands and pump-out systems.
- 2.42 Once treated, effluent is dispersed in a 'land application area'. A land application area is an area that treated waste is dispersed over, by either surface or sub-surface irrigation. There is a variety of land application systems used to disperse effluent. The choice of system is dependent on the physical characteristics of the site, whether the effluent has been treated to primary, secondary or tertiary standard, and whether or not the landowner wants to utilise the effluent for irrigation or dispose of it.
- 2.43 Determining the appropriate size for a land application area is a complex calculation that should only be carried out by a qualified professional. Land application areas should be designed according to *Environment and Health Protection Guidelines* and *Australian Standard 1547:2012 On-Site Domestic Wastewater Management*. Careful consideration needs to be paid to the location of installing an on-site sewage management system, with particular attention to the various geographic, geological and climatic features that could make installation inappropriate in certain locations. In particular, this involves understanding the physical features of the site, including gradient, soil characteristics, climate, proximity to waterways or environmentally sensitive areas, and household size.

## Design Considerations

- 2.44 Although not exhaustive, there are various features that can affect the suitability of installation of various types of sewage treatment systems and, in turn, have adverse impacts on the environment. They form the design principles that should be taken into account when determining what type of sewage treatment system to install, and where.
- 2.45 These important design protocols discussed in the previous section are not always properly considered. Associate Professor Phillip Geary from the University of Newcastle stated that failure to properly design land application areas have led to many problems:

Best practice management means that you assess the site or the location and you design accordingly and you try to anticipate how big it has to be based upon the volume that you are dealing with but also the site conditions. I do not think there is any doubt that a lot of the problems that we have are a failure to consider those conditions years ago because there are in many cases places that should not have been developed or had these systems put in.<sup>7</sup>

- 2.46 Industry consultant, Joe Whitehead, echoed these remarks:

... the capacity of land to manage wastewater varies according to characteristics like soil and other physical characteristics of the terrain, the slope, the climate and that

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<sup>7</sup> Transcript of Evidence, Hearing, 22 March 2012, p5



sort of thing. We have nowadays a pretty good grasp of those parameters and how they play out in terms of the impacts. What we need to do is incorporate into good guidelines and good planning that information that we have now and the understanding of it to be able to better manage systems.<sup>8</sup>

### *Gradient*

- 2.47 Sites with steep gradients may be deemed unsuitable for on-site sewage management systems with soil absorption features, as run-off is likely to occur. Certain types of gradient may exacerbate existing geological features, for example if the ground slope converges so that runoff will pool in a certain area, rather than runoff in a divergent manner. This may be particularly problematic if the slope is waning. That is, the up-slope is steeper and down-slope is gentler, thus water is progressively slowed down as it runs down, further promoting soil wetness and consequent stagnancy.

### *Soil*

- 2.48 Different soils are able to absorb differing levels of pollutants, nutrients and water. The ability of a soil to absorb water is known as the hydraulic loading rate.<sup>9</sup> The hydraulic loading rate must be such that runoff or excessive percolation of wastewater into the subsoil does not occur.
- 2.49 Nutrient loading is the amount of nutrients applied to land over a specific time period. If more nutrients are added than can be removed, they can be transferred to ground and surface waters and can cause adverse environmental and health effects.<sup>10</sup> Nutrients may be removed through soil absorption, adsorption and vegetation uptake. The nutrient loading rate must be such that excess nutrients do not remain in the soil, and may pollute groundwater.
- 2.50 Different soil textures, such as clay or sandy loams, have different levels of permeability, and a proper assessment of the soil type for land application systems is imperative.
- 2.51 Erosion is another key soil consideration, and land application should be avoided when placed on an environment prone to erosion or other potential soil shift.

### *Climate*

- 2.52 The rainfall, humidity, aspect and temperature all affect the ability of land application areas to absorb treated wastewater. Wastewater cannot be applied to land during wet weather and whenever soil is saturated, because of the possibility of surface ponding, again promoting stagnancy.<sup>11</sup>
- 2.53 A similar climatic consideration is flood potential. Although inexact, it is generally considered important that all components of a system be placed in a land application region with a less than one in 100 flood probability.

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<sup>8</sup> Transcript of Evidence, Hearing, 22 March 2012, p19

<sup>9</sup> *On-site Sewage Management for Single Households* guidelines, p112

<sup>10</sup> *On-site Sewage Management for Single Households* guidelines, p112

<sup>11</sup> *On-site Sewage Management for Single Households* guidelines, p117

### *Water Setback*

- 2.54 It is important that land application areas are sited sufficient distance from waterways or environmentally sensitive areas, such as bores, waterways, buildings, or neighbouring properties.
- 2.55 These buffer distances must take into account appropriate horizontal setback distances, to ensure an appropriate buffer from such as property or surface water, as well as vertical setback distances to safeguard groundwater.

### **Disposal and Utilisation of Effluent**

- 2.56 Soil absorption systems are a disposal method for effluent that has been treated to primary standard. Effluent is released into distribution pipes and then filtered through a sand and gravel bed to the underlying soil. Effluent is released into the soil at a depth that is not accessible to the roots of vegetation – usually at a depth of 500-700 mm. The soil acts to filter the effluent, removing pathogens, toxins and other pollutants. Nutrients in the effluent are taken up by vegetation planted on top of the absorption trench. The treated effluent then flows through the soil eventually reaching ground and surface water.
- 2.57 Vegetation planted over soil absorption systems must not have invasive or deep root systems, which could interfere with distribution pipes. The *On-site Sewage Management for Single Households* guidelines contain a list of recommended vegetation.
- 2.58 The design of soil absorption systems is based on the relationship between the permeability of a soil and the long-term ability of the soil to accept and transmit the treated wastewater through the soil profile.<sup>12</sup>
- 2.59 The *On-site Sewage Management for Single Households* guidelines caution that 'these systems are not recommended in sensitive areas as they may lead to contamination of surface water and groundwater'.<sup>13</sup>
- 2.60 Once again, appropriate horizontal and vertical setback distances needed to be considered before disposal through soil absorption.

### *Utilisation – Surface Irrigation*

- 2.61 Surface irrigation releases effluent treated to tertiary standard above ground via dripper, trickle or spray nozzle irrigation systems. Safe surface irrigation relies on the effectiveness of the disinfection stage of treatment. The Sydney Catchment Authority Current Recommended Practice manual cautions that:

The most common disinfection process, chlorination, does not kill all pathogens. Surface saturation and run-off of effluent are also more likely with surface irrigation.<sup>14</sup>

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<sup>12</sup> *On-site Sewage Management for Single Households* guidelines, p119

<sup>13</sup> *Environment and Health Protection Guidelines*, Public Information Brochure, *Your Land Application Area*

<sup>14</sup> *Designing and Installing On-Site Wastewater Systems*, A Sydney Catchment Authority Recommended Practice, p155

- 2.62 Because the chance of human contact with effluent is greatly increased with surface irrigation systems, they must be designed to avoid the generation of airborne drift or run off of effluent into neighbouring properties.
- 2.63 The *On-site Sewage Management for Single Households Guidelines* also cautions about the health and environmental dangers of surface irrigation systems.

There are some public health and environmental concerns about surface irrigation. There is the risk of contact with treated effluent and the potential for surface run-off. Given these problems, subsurface irrigation is arguably the safest, most efficient and effective method of effluent utilisation.<sup>15</sup>

#### *Utilisation – Subsurface Irrigation*

- 2.64 Subsurface irrigation releases effluent treated to secondary standard close to the soil surface, although not above 100mm. Subsurface irrigation allows vegetation to utilise the nutrients and water in treated effluent with minimal risk of human contact or run-off. As noted above in paragraph 2.62, subsurface irrigation may be considered a better choice than surface irrigation.
- 2.65 There are several methods for the disposal of effluent into the soil. For example, some use absorption trenches. This involves drainage and pipes being installed below the surface and enabling the soil to absorb the effluent. The absorption of the nutrients by the soil and uptake by vegetation helps assimilate the nutrients. Meanwhile, the pathogens in the effluent can be trapped and killed in the soil before they can cause contagion. It is, however, imperative that buffer distances from waterways and appropriate soil types be considered before utilising subsurface irrigation methods.
- 2.66 Transpiration beds can also be used. This involves laying a barrier between the ground and the bed so that effluent cannot escape into the soil. Instead, the beds contain its own soil and a layer of turf or reeds on top. The removal of effluent is achieved through evaporation and transpiration through the plants.
- 2.67 There are numerous variations on this theme, which can include the construction of earth mounds, sand beds and the construction of artificial wetland systems.

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<sup>15</sup> *Environment and Health Protection Guidelines, Public Information Brochure, Your Land Application Area*

## Chapter Three – Sewage Systems: Risks and Consequences

- 3.1 This Chapter examines the risks and consequences on-site sewage management systems may have on local oyster and horticulture industries. In turn, this Chapter assesses the effects of biological and nutrient risks to human health.

### Contamination

- 3.2 In most circumstances, on-site sewage systems are safe, reliable, and should not pose any concern to individuals, the environment or the public-at-large. However, there remains the real risk of contamination from faulty or improperly maintained systems. In such circumstances, contaminated water or sewage itself may enter the soil and leach into waterways. These leakages pose significant risks to environment and public health. Secondary consequences include the adverse impacts such incidents have on local industries, such as aquaculture, horticultural and tourism.
- 3.3 During its hearing, Prof. Geary informed the Committee that the failure of on-site sewage management systems and their potential to cause contamination could not be reduced to a single factor, but was by a composite of factors. This includes design, installation, maintenance and monitoring.<sup>16</sup>
- 3.4 Mr Whitehead, submitted that low standards in all areas of on-site wastewater management have contributed to contamination events and will continue in the future unless standards are raised:
- ... standards across the board in terms of design, installation, maintenance and regulation have been demonstrably inadequate. The industry needs to recognise and accept that the low standards of the past have resulted in many unsatisfactory outcomes and it is time that standards were raised. Historically, the wider community has seen on-site wastewater management as low-cost and as a consequence limited budgets and an unwillingness to spend an appropriate amount on effective solutions have been significant contributors to less than satisfactory outcomes.<sup>17</sup>
- 3.5 Domestic wastewater, by its very nature, contains contaminants. These contaminants include pathogens, nutrients, hormones, pharmaceuticals, personal care and cleaning products. Although on-site sewage management systems reduce levels of contaminants, complete elimination is virtually impossible. As a result, wastewater needs to be treated to a safe, disposable standard where the risk to human health and the environment is mitigated as much as practically possible.
- 3.6 Where wastewater treatment is inadequate, or treated effluent is not properly disposed of, both human health and the environment are at risk of exposure to

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<sup>16</sup> Transcript of Evidence, Hearing, 22 March 2012, p5

<sup>17</sup> Submission no 23, Whitehead & Associates Environmental Consultants, p2

these contaminants through either direct contact or indirect contact via contaminated water, groundwater, soil or crops. The risks were summarised by Eurobodalla Shire Council in their submission:

Sewage poses two main known risks:

Pathogenic, such as E. coli, hepatitis, cryptosporidium from either direct contact with sewage (e.g. failing absorption trenching or poorly maintained irrigation systems) or indirect (contamination of groundwater or waterways).

Nutrients, eutrophication of waterways caused by excessive nutrients resulting in, for example, fish kills, blue-green algae toxins...

... There is an increasing amount of research also identifying risks such as metals (copper, chromium, mercury) and pharmaceuticals (e.g. hormones, cancer treatments, caffeine) which are being found in sewage. The amount of risk that these pose at a domestic level is still uncertain.<sup>18</sup>

### *Biological Risks*

3.7 Pathogens are micro-organisms that can cause disease.<sup>19</sup> The presence of pathogens such as viruses or bacteria from on-site sewage management systems are a particular concern as they are able to migrate long distances and survive for long periods in water, soil and on crops.<sup>20</sup> Many different pathogens have been implicated in outbreaks of illness due to contamination by domestic wastewater. There are a handful of well-known pathogens caused primarily through faecal contamination, and which the public are particularly at risk when on-site sewage management systems falter. Some of the more common illnesses are caused by the following pathogens:

*Hepatitis A* – The Hepatitis A virus causes acute gastroenteritis, accompanied by anorexia, headache and low grade fever followed by jaundice.<sup>21</sup> In most instances, people recover completely within one to two weeks, however in some rare circumstances symptoms can be very severe and prolonged, and lead to death. Hepatitis A can survive for over a month in the environment. Perhaps most infamously of all, it was Wallis Lake oysters contaminated with Hepatitis A, caused itself by faulty on-site sewage management systems, that were responsible for an outbreak of illness in 1997 (see case study).<sup>22</sup>

*Escherichia coli (E. coli)* – E. coli are bacterium found in the gut and faeces of people and animals. Most strains are harmless, but some may produce toxins that cause severe disease. E. coli is present in water and soil contaminated with poorly treated wastewater and can survive for long periods. A strain of E.

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<sup>18</sup> Submission no 14, Eurobodalla Shire Council, p2

<sup>19</sup> On-site sewage management for single households, p79

<sup>20</sup> K. A. Buckle, J. A. Davey, M. J. Eyles, A. D. Hocking, K. G. Newton and E. J. Stuttard (eds), *Foodborne Microorganisms of Public Health Significance*, Ch 5 Viruses, Food and Environment, p 563

<sup>21</sup> Conaty et al, *Hepatitis A in New South Wales, Australia, from consumption of oysters: the first reported outbreak*, *Epidemiol. Infect.* 2000 124, pp 121-130

<sup>22</sup> Conaty et al, *Hepatitis A in New South Wales, Australia, from consumption of oysters: the first reported outbreak*, *Epidemiol. Infect.* 2000 124, pp 121-130

*coli* bacteria found in bean sprouts irrigated with contaminated water caused widespread illness and more than twenty deaths in Europe in 2011.<sup>23</sup>

*Norovirus* – Norovirus is a common cause of acute gastroenteritis outbreaks and can be found in water with faecal contamination. While outbreaks usually last between seven to 10 days, outbreaks lasting many months have been recorded. Norovirus has been implicated in many outbreaks of illness in Australia, through consumption of contaminated oysters, contaminated bore water, drinking water and contact with septic tank contents.<sup>24</sup> The Kalang River in northern NSW has been closed to oyster harvesting since 2008 due to norovirus contamination.<sup>25</sup>

- 3.8 Although these are the more serious diseases that can be caused by sewage contamination, it should be noted that there are hundreds of other non-specific pathogens found in faecal matter than can cause serious illness.

### *Nutrient Risks*

- 3.9 Although nutrients are vital chemical elements essential for human functioning and development, an increase in nutrient concentration, such as nitrogen and phosphorus, which can be found in treated wastewater, can upset the balance of ecosystems and cause adverse environmental and health effects.<sup>26</sup> Nutrients that are not treated effectively by on-site sewage management systems can travel large distances in soil.<sup>27</sup> The following nutrients have been identified as the most damaging when high concentrations enter groundwater, soil or waterways:

*Nitrogen* – Nitrogen can be present in treated domestic wastewater in several forms, including nitrate, nitrite and nitrogen. High nitrate and nitrite levels in water are known to be dangerous to human and animal health.<sup>28</sup> A high concentration of nitrogen in water is associated with algal blooms and dense aquatic plant growth.<sup>29</sup> A study conducted by *Land and Water Australia* found that groundwater nitrate levels are increasing and found high concentrations of nitrate in groundwater in all locations with septic tanks, with some areas having concentrations high enough to make the groundwater unfit for human consumption.<sup>30</sup>

*Phosphorus* – A high concentration of phosphorus in water is associated with eutrophication. Eutrophication is an excess growth of algae which clouds the water. This results in the death and decline of underwater grasses, leading to

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<sup>23</sup> <http://www.foodstandards.gov.au/scienceandeducation/factsheets/factsheets/ecolioutbreakingerma5561.cfm>, accessed 27 July 2012

<sup>24</sup> K. A. Buckle, J. A. Davey, M. J. Eyles, A. D. Hocking, K. G. Newton and E. J. Stuttard (eds), *Foodborne Microorganisms of Public Health Significance*, Ch 5 Viruses, Food and Environment, p565

<sup>25</sup> Submission no 18, NSW Farmers' Association, p 9

<sup>26</sup> On-site sewage management for single households, p112

<sup>27</sup> On-site sewage management for single households, p113

<sup>28</sup> Department of sustainability, environment, water, population and communities, *National Pollutant Inventory*, <http://www.npi.gov.au/substances/nitrogen/health.html>, accessed 31 July 2012

<sup>29</sup> Department of sustainability, environment, water, population and communities, *National Pollutant Inventory*, <http://www.npi.gov.au/substances/nitrogen/health.html>, accessed 31 July 2012

<sup>30</sup> P Bolger, M Stephens, *Contamination of Australian Groundwater Systems with Nitrate, Occasional Paper 03/99*, Land and Water Australia, 2008

loss of habitat for fish and other aquatic organisms. Once the algae itself dies and decomposes, oxygen content in the water is depleted, leading to further death of fish and other marine animals.<sup>31</sup> Occasionally algal blooms may be harmful and produce toxins that are dangerous for people and animals. Although no human deaths have been attributed to algal toxins in Australia, there is evidence of stock deaths and poisoning of wildlife and domestic pets. A 1000km long toxic bloom of blue-green algae in the Darling River caused the New South Wales government to declare a state of emergency in 1991.<sup>32</sup>

- 3.10 The chemical balance of waterways can also be disrupted by an increase in its sodium content, turning otherwise fresh water brackish and affecting its quality and suitability for aquaculture. In addition, discharges that affect the relative pH of waterways, and thereby make water particularly acidic or alkaline, could contaminate land and soil for agricultural purposes.
- 3.11 A clearer account of some of the biological risks posed by faulty sewage management systems can be ascertained through some local case studies, including the Wallis Lake outbreak.

#### Case study – Wallis Lake

In 1997, an outbreak of the Hepatitis A virus occurred that was attributed to consumption of oysters contaminated with either raw sewage or faecal pollution, sourced from Wallis Lake – an estuarine lake located on the mid-north coast. In all, there were 444 reported cases of Hepatitis A, including one death. This was the first reported outbreak of Hepatitis A in Australia linked to consumption of oysters.<sup>33</sup>

The exact source of contamination was never identified, however evidence pointed to contaminated effluent from the Wallamba River, which feeds into Wallis Lake. At the time of the outbreak, Wallamba River was home to over 300 residences with on-site sewage management systems, a number of which were found to be faulty and leaking. High rainfall before the outbreak had led to flows of turbid water and high readings of *E. coli* at the mouth of the Wallamba River.

In response to the Wallis Lake outbreak, regulations were revised to improve maintenance of on-site sewage management systems and local councils received funds to develop sewage management strategies.<sup>34</sup>

### Risks to Oysters

- 3.12 The farming of seafood in New South Wales is an industry with a long history, with the growing of oysters beginning commercially in New South Wales in the 1870s. In 2010 the farmgate value of oysters in NSW contributed \$43 million to

<sup>31</sup> Department of Environment and Natural Resources, Government of South Australia, *Eutrophication*, [http://nrmeducation.net.au/uploads/images/selc/pages/modules/inland\\_waters/sa\\_03.html](http://nrmeducation.net.au/uploads/images/selc/pages/modules/inland_waters/sa_03.html), accessed 31 July 2012

<sup>32</sup> <http://www.mdba.gov.au/water/blue-green-algae>, accessed 6 August 2012

<sup>33</sup> Conaty et al, *Hepatitis A in New South Wales, Australia, from consumption of oysters: the first reported outbreak*, *Epidemiol. Infect.* 2000 124, pp 121-130

<sup>34</sup> Submission no 30, NSW Department of Premier and Cabinet, p2

the New South Wales economy, by far the State's largest aquaculture industry.<sup>35</sup> Some 44% of the nation's oysters are commercially harvested in NSW.

- 3.13 This industry produces some 9.2 million oysters annually, and provides approximately 1,500 jobs in over 300 businesses. These oysters grow in permits in 30 estuaries on some 2,830 hectares of lease that extend the entire length of the NSW coastline.<sup>36</sup>
- 3.14 The NSW Farmers' Association estimated that fifty percent – or just under 100,000 – of all the State's on-site sewage management systems are located in coastal catchment areas.<sup>37</sup> Meanwhile, the NSW Food Authority estimates that 4,225 systems are located in or near the vicinity of shellfish harvest areas.<sup>38</sup>
- 3.15 As the Wallis Lake outbreak demonstrated, the nature of oyster harvesting and production makes it particularly susceptible to pollution incidents. This is because oysters filter between 10 and 20 litres of water each hour to obtain food. As they filter water for food, any pathogens or chemical contaminants contained in the water are likely to be concentrated in the oysters' gut. As oysters are frequently consumed uncooked and with their gut intact, it follows that the oysters will transmit contaminants to any individual who ingests them.<sup>39</sup>
- 3.16 Prof. Geary stated that 'over the last 20 years, at any one time there has been an estuary in New South Wales closed to oyster harvesting that resulted from some contamination event.'<sup>40</sup> In addition, he advised that the frequency of contamination events appear to be increasing.<sup>41</sup>
- 3.17 An understanding of the impacts on the oyster industry can be ascertained through the Kalang River experience.

#### **Case Study – Kalang River**

In 2008 an outbreak of Norovirus caused several people to fall ill after eating oysters grown in the Kalang River. The entire harvest area was closed and remains closed today. The norovirus outbreak, while not causing illness on the scale of the Wallis Lake Hepatitis A outbreak, has had grave economic consequences.

An oyster farmer, Mr Michael Wright, submitted that sewage contamination of the Kalang River in Bellingen from sources including sewage systems had forced the dissolution of his business:

For over 3 years the Kalang River has been contaminated by sewage from the local shire. The contamination comes from a variety of sources all governed by the local Bellingen

<sup>35</sup> [http://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0004/288643/Aquaculture-facts-and-figures-2011.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0004/288643/Aquaculture-facts-and-figures-2011.pdf), accessed 20 July 2012

<sup>36</sup> Transcript of Evidence, Hearing 22 March 2012 at p44.

<sup>37</sup> Submission no 18, NSW Farmers Association, p5

<sup>38</sup> Submission no 30, NSW Department of Premier and Cabinet, p5

<sup>39</sup> K. A. Buckle, J. A. Davey, M. J. Eyles, A. D. Hocking, K. G. Newton and E. J. Stuttard (eds), *Foodborne Microorganisms of Public Health Significance*.

<sup>40</sup> Transcript of evidence, Hearing, 22 March 2012, p2

<sup>41</sup> Transcript of Evidence, Hearing, 22 March 2012, p2



Council, these include the sewage treatment works, local caravan parks, boat sheds on the river and many OSMS's in the shire that have been wrongly placed and mismanaged/unregulated. This contamination has prohibited oyster harvest from the Kalang River. Our oyster business has been decimated, and after 3 long years we are now dissolving the business, as it cannot be sold as an oyster farm.<sup>42</sup>

Audits of sewage systems adjacent the Kalang River estuary found that a number, which had been approved by the local council, were faulty.<sup>43</sup>

In response to the contamination of the Kalang River caused – in part – by faulty systems, Bellingen Shire Council has recently, and controversially, required all property owners of Newry Island in the middle of the river to connect to the region's reticulated sewerage system. This response reflects the concern of on-site sewage management systems generally in certain regions.

### *Classification of Harvest Areas*

- 3.18 The NSW shellfish industry is regulated by NSW Food Authority under the Food Regulation 2010. All oysters and mussels grown and collected for sale in NSW are harvested in accordance with the *NSW Shellfish Program*.<sup>44</sup> The object of the program is to ensure that shellfish harvested or collected in New South Wales meet food safety requirements.
- 3.19 Under the *NSW Shellfish Program*, both the environment and shellfish are monitored, sampled and analysed to search for possible sources of contamination and to measure actual levels of contaminants in the shellfish and the water they live in. The NSW Food Authority *NSW Shellfish Industry Manual* outlines the assessment and sampling that is required. This includes undertaking an assessment of the actual and potential sources of contamination that could reach the harvest area through downflow or marine currents, as well as an examination of the environmental features that could affect pollution levels, including soil type, slope and tidal conditions.
- 3.20 The sampling needs to take into account variation that may be caused by tides, seasons and seasonal activities to ensure food standards are maintained year-round. Following the drafting of a report – the Sanitary Survey – which includes consolidated information derived from the testing, the harvest areas are designated a classification. The NSW Food Authority currently classifies harvest areas into one of three categories.
- 3.21 A rating of 'conditionally approved' enables shellfish to be directly harvested. A rating of 'conditionally restricted' means that shellfish must be depurated for a minimum of 36 hours before being sold for human consumption. The most restrictive category is 'prohibited' in which shellfish cannot be harvested for human consumption. Shellfish cannot be harvested from growing areas that are

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<sup>42</sup> Submission no 16, Mr Michael Wright

<sup>43</sup> Geary PM, Whitehead JH (2011). Water quality impacts on estuarine aquaculture: a review, *Water*, November 2011

<sup>44</sup> <http://www.foodauthority.nsw.gov.au/industry/industry-sector-requirements/shellfish/#operationsmanual>, accessed 8 August 2012

not classified, instead they must be translocated to classified areas for 60 days before they can be harvested for human consumption.<sup>45</sup>

3.22 In each harvest area, the NSW Food Authority appoints a committee that is responsible for overseeing the harvest area management plan, which determines the set of criteria that must be met for the harvest and sale of shellfish to proceed.<sup>46</sup> Currently in NSW there are 76 harvest areas, with 30 classified as conditionally approved, 42 classified as conditionally restricted and one area classified as prohibited. The remaining areas have their status pending, are currently undefined or are inactive harvest areas.

3.23 Oysters harvested from areas classified as conditionally restricted must be depurated to remove low levels of contaminants such as bacteria from the oyster before being sold. The NSW Shellfish Industry Manual sets out the conditions for depuration which is administered by the NSW Food Authority. Oysters are placed in a bath of UV treated water for approximately 36 hours and as they feed on the treated water they purge any contaminants stored in their gut.

3.24 The Committee received evidence from oyster farmers that failing sewage systems are the main contributing factor for reduced water quality, preventing many of the 42 restricted harvest areas from being classified as direct harvest areas:

'...domestic wastewater from on-site sewage management systems is the main reason why sanitary water quality does not currently meet the direct harvest objective in all harvest areas.'<sup>47</sup>

3.25 Another oyster grower commented on the impact of the risk of contamination:

The harvest of oysters for human consumption from the Brunswick River has been prohibited by the NSW food Authority since 2000, due to the risk to human health posed by discharges of raw sewage...<sup>48</sup>

3.26 The extent of the damage sewage contamination is having on the oyster industry was made clearer by the NSW Farmers' Association which submitted that a number of harvest areas are at risk of being downgraded due to failing sewage systems.<sup>49</sup>

### *Contamination Monitoring and Depuration*

3.27 Under the *NSW Shellfish Program*, water and shellfish in harvest areas are regularly tested for the presence of various pathogens. The cost of testing for pathogens, and subsequent depuration if required, is borne primarily by the

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<sup>45</sup> NSW Food Authority – Harvest Area Classification <http://www.foodauthority.nsw.gov.au/industry/industry-sector-requirements/shellfish/>, accessed 9 August 2012

<sup>46</sup> NSW Shellfish Industry Manual NSW/FA/FI068/1204

<sup>47</sup> Submission no 31, confidential

<sup>48</sup> Submission no 12, Steinhardt's Oysters

<sup>49</sup> Submission no 18, NSW Farmers' Association, p6

aquaculture industry.<sup>50</sup> Pathogens regularly tested for faecal chloroforms, E. coli, phytoplankton and, periodically, heavy metals.<sup>51</sup>

- 3.28 However, viruses such as the Hepatitis A virus or the norovirus are not routinely tested for, nor are they removed by the depuration process. Prof. Geary told the Committee that testing for the presence of viruses is hard, expensive and slow, and so commonly, only bacteria are monitored. He raised the importance of finding new indicators for testing for the presence of contaminants:

We do monitoring of that water quality. We do it from a point of view of looking at bacterial content but what we are really concerned about are viruses. If those viruses come from humans, hepatitis is a good example, then we may have a serious problem. But we do not do any work monitoring for viruses, we just take a risk assessment approach and we say if there is bacteria present there may be viruses present ... the difficulty in monitoring for viruses is that it is hard, it is expensive and it is slow. What we need to do is to look at other indicators that might be as useful.<sup>52</sup>

- 3.29 In terms of the expense of testing for contaminants, Prof. Geary informed the Committee that it would be unfair to impose the further cost of virus testing on oyster farmers as they are 'dealing with contaminants from the land and they have no control over activities on the land'. Prof. Geary added that this did not mean that virus testing was not important, but that other testing and indicators needed to be developed.<sup>53</sup>

- 3.30 While oyster farmers are able to test for the presence of certain pathogens in their oysters and in the water the oysters grow in, they are reliant on local councils to monitor on-site sewage management systems and notify them promptly when any failings are detected. Where council inspection procedures are inadequate, oyster farmers are put at risk. The submission by the Department of Premier and Cabinet noted that:

There is no standardised process for the inspection of OSMS or common knowledge on how to identify an OSMS failure. As such, inspection and maintenance of OSMS varies widely, and is not always effective. This issue is further compounded by a general lack of resources available to councils to be dedicated to OSMS management.<sup>54</sup>

- 3.31 Prof. Geary, writing for the professional journal, *Water*, observed that testing estuary water for viruses is particularly difficult and new techniques are needed to more easily detect evidence that on-site sewage management systems are failing:

Demonstrating direct linkages between the wastewater management practices of small communities and estuarine water quality is difficult at the catchment scale and may not be possible using standard monitoring techniques and typical microbiological indicators ... In developing new monitoring programs, consideration should be given to either more regular assays for human viruses in oysters, or in

<sup>50</sup> [http://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0005/134636/Output-13.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0005/134636/Output-13.pdf), accessed 18 July 2012

<sup>51</sup> NSW Shellfish Industry Manual NSW/FA/FI068/1204, table 1

<sup>52</sup> Transcript of Evidence, Hearing, 22 March 2012, p4

<sup>53</sup> Transcript of Evidence, Hearing, 22 March 2012, p5

<sup>54</sup> Submission no 20, NSW Department of Premier and Cabinet, p4

measuring chemicals associated with human metabolism and activity, which can also be present in human faecal material such as caffeine, faecal sterols and various pharmaceutical compounds.<sup>55</sup>

- 3.32 The Committee recognises the significant stress placed on the State's oyster farmers given the frequency of contamination events, for which they often bear the costs and deal with the consequences. The absence of routine testing for viruses, which have been known to cause disease outbreaks, is of concern to the Committee.
- 3.33 To this end, the Committee recognises the work of the *NSW Shellfish Quality Assurance Program* and encourages further and continuous testing of waterways where oysters are harvested including new testing methods, such as for viruses and heavy metals, the costs of which should be borne by the NSW Government to ease the burden on oyster farmers and local councils alike.

## RECOMMENDATION 1

**The Committee supports the work of the *NSW Shellfish Quality Assurance Program* and encourages further and continuous testing of waterways where oysters are harvested. In addition, the Committee encourages the exploration of new testing methods to consider different risks to oysters, including viruses and heavy metals.**

### *Economic Effects of Contamination*

- 3.34 As discussed earlier, at any one time an estuary is closed in New South Wales due to a contamination event. The Committee heard that while the incidence of human illness is low, due to the effectiveness of the *NSW Shellfish Quality Assurance Program*, closure of estuaries leads to losses in oyster production and sales, job loss within the estuary, and costs to tourism.<sup>56</sup> The NSW Farmers' Association estimated that twenty percent of the oyster production in New South Wales is lost annually due to pollution closing estuaries.<sup>57</sup>
- 3.35 Closure of estuaries may be long term, for example the Kalang River has been closed to oyster harvesting since 2008. Steinhardt's Oysters of Ballina submitted that the Brunswick River, located at Ballina in northern NSW, has been closed to oyster harvesting since 2000.<sup>58</sup>
- 3.36 The Committee recognises that on this issue, there is no quick remedy, and that the fate of oyster farmers appears to be left in the hands of others. However, the Committee does recognise that oyster farmers, oysters, and the individuals who eat them, are the primary stakeholders most directly affected by sewage discharges from improper systems.
- 3.37 The Committee supports the work of the *NSW Shellfish Quality Assurance Program* in ensuring the harvest and production of safe and consumable oysters.

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<sup>55</sup> Geary PM, Whitehead JH (2011). Water quality impacts on estuarine aquaculture: a review, *Water*, November 2011

<sup>56</sup> Submission no 31, Confidential

<sup>57</sup> Transcript of Evidence, Hearing, 22 March 2012, p9

<sup>58</sup> Submission no 12, Steinhardt's Oysters, p1

The Committee also considers it imperative that the NSW Food Authority continues to liaise with oyster farmers and be receptive to comments by the oyster industry with respect to advancements in estuarine testing, depuration processes and other issues they confront.

## RECOMMENDATION 2

**The Committee recommends that the NSW Food Authority continue to liaise with oyster farmers and be receptive to comments by the oyster industry with respect to advancements in estuarine testing, depuration processes and other issues that they confront.**

### Risks to Horticulture

- 3.38 A significant proportion of fruit and vegetables are grown in small-scale operations in New South Wales. Owners and their associated on-site sewage management systems often reside in close proximity to crop areas. Faulty or improperly maintained on-site sewage management systems and poor understanding of the risks associated with exposing crops to effluent lack of pose significant risks in the horticultural industry.

#### *Negligent Use*

- 3.39 The Committee received evidence that many on-site sewage management systems located on small scale horticulture holdings are in close proximity to crop areas, and that these systems are failing. Failing systems in these situations could lead to effluent affecting many hundreds of people through direct contamination of crops, and by indirect contamination of groundwater. In representations made to the Committee, numerous local government authorities provided evidence of faulty systems contaminating market garden operations.
- 3.40 Representatives from Camden Council told the Committee that in the Camden there are approximately 130 intensive market gardening operations. Of those, the council estimates that two thirds have failing systems. Photographic evidence of the impact of failing systems on market garden operations was provided to the Committee. These photos demonstrate that water from overflowing septic tanks were entering crop areas, that buffer zones were being breached, that there was widespread use of effluent hoses conveying wastewater to crops rather than sub-surface irrigation systems, and there was evidence of poorly maintained and damaged systems in places adjacent to crops.<sup>59</sup>The Committee also received evidence of wastewater from broken or poorly maintained systems pooling on the ground or flowing to dams or crop areas.
- 3.41 Penrith City Council provided similar evidence to the Committee that even when property owners did not directly use treated wastewater on crops, the treated wastewater often ended up in dams which was then used to irrigate crops:

When we go out onto a property whether or not they are directly using effluent on produce, more often than not all the water in management on the site does end up

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<sup>59</sup> Transcript of Evidence, Hearing, 22 March 2012, p38

with effluent or highly nutrient waters ending up in dams which is then re-irrigated on crops. Some of them do have the irrigation very close to food crops.<sup>60</sup>

### *Community Misunderstanding*

- 3.42 While there is widespread knowledge in the community that direct contact with untreated, raw sewage places people at serious risk of contracting disease, there remains pockets of misunderstanding about the ill-effects of contaminating crops, both directly and indirectly, with untreated effluent. The Committee received evidence from a number of stakeholders that in some areas treated wastewater from on-site sewage wastewater systems is applied directly to food crops, or insufficient buffer zones are applied between land application areas and crop areas.<sup>61</sup>
- 3.43 From many of the submissions received, it appears that these breaches are not necessarily unintended errors, but deliberate uses of wastewater on crops for fertilising purposes. This suggests that there is either a negligent disregard for environmental and human health, or a lack of awareness as to the risks associated with untreated effluent on food crops.
- 3.44 The submission from Environmental Health Australia similarly raised concerns about the use of effluent from on-site sewage management systems:
- The use of effluent from on-site sewage management facilities, particularly in intensive agricultural situations where crops such as salad vegetables, which are often consumed raw, are contaminated with effluent directly or indirectly through the use of irrigation water that has been contaminated with effluent. Experience of our members show that many people involved in market garden operations have very little appreciation of the risks and consequences of contaminating food crops with effluent.<sup>62</sup>
- 3.45 Camden Council also submitted that in its local government area, some market garden operators have minimal understanding of the risks associated with exposing crops to effluent, and many local operations assumed that effluent was a valuable source of fertiliser:
- Properties used for market gardening are often intensively developed and used, with crops grown in close proximity to domestic OSMS. Furthermore, proprietors of market gardens sometimes consider that effluent from the domestic wastewater stream (including sewage) has value as a fertiliser adding effluent from OSMS to the irrigation resources of the site. Many operators have little regard for the requirements to maintain buffer distances, properly maintain the overall system or the final disposal of effluent.<sup>63</sup>
- 3.46 The extent of misunderstanding is widespread. Bega Valley Shire Council submitted that in its local government area, council inspectors also found that owners of on-site sewage management systems often misunderstood the danger of using treated effluent on crops:

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<sup>60</sup> Transcript of Evidence, Hearing, 22 March 2012, p37

<sup>61</sup> Submission no 9, Richmond Council; Submission no 14, Eurobodalla Shire Council

<sup>62</sup> Submission no 24, Environmental Health Australia (NSW) Inc. p2

<sup>63</sup> Submission no 9, Camden Council, p3

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It is surprising that many people in the general public do not understand the dangers of effluent and using it for irrigation purposes especially on vegetable crops. Many people who have an AWTS think that because the water is treated that it can be used for the purpose of watering garden crops and educating the home-owner of the dangers associated with such a practice is required.<sup>64</sup>

- 3.47 Meanwhile, Eurobodalla Shire Council submitted photographic evidence of the pumping of raw effluent onto community vegetable gardens in its local government area. It cautioned that incorrect or overly optimistic claims made by technicians and manufacturers of on-site sewage management systems, such as claiming that treated effluent from their system is 'so good you could drink it' led to complacency on the part of owners towards the risks associated with coming into contact with untreated effluent.<sup>65</sup>
- 3.48 On this point, Shoalhaven City Council submitted that they occasionally receive requests from on-site sewage management systems owners to apply treated effluent to commercial food crops. Their submission pointed to inadequate detail in the 'Silver Book' guidelines in providing information on the suitable level of treatment and method of application.<sup>66</sup>
- 3.49 Many councils expressed concern that there was inadequate guidance available on the appropriate size of buffer zones between sewage systems and crop areas.<sup>67</sup> Camden Council submitted that they had sought advice from a number of authorities and were not given definitive guidelines:
- On a number of occasions Camden Council has sought advice from State government bodies including Primary Industries, NSW Food Authority and NSW Health concerning the appropriate buffering of food crops from domestic wastewater application areas in order to facilitate a safeguard to crops particularly on intensively farmed small rural properties. All have been noncommittal. It has been suggested that Council should seek its own legal advice in this regard.<sup>68</sup>
- 3.50 The sum of anecdotal evidence relayed by many of the stakeholders in the Inquiry suggests that the persistent belief that untreated effluent can act safely as a fertiliser remains in some sections of the community.
- 3.51 The Committee recognises that the profound misunderstanding of the benefits of untreated effluent as an effective fertiliser may still exist in only some sections of the community. Despite this, the threat to the community from even one outbreak of disease is significant enough to warrant action.
- 3.52 Further, the Committee notes the frustration expressed by many councils at the lack of definitive guidance with respect to appropriate buffer zones, the level of treatment required before effluent can be used for irrigation purposes, and other related matters. This will be considered further in Chapter 4.

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<sup>64</sup> Submission no 11, Bega Valley Shire Council, p2

<sup>65</sup> Submission no 14, Eurobodalla Shire Council, p9

<sup>66</sup> Submission no 27, Shoalhaven City Council, p2

<sup>67</sup> Submission no 9, Camden Council; Submission no 15, Penrith City Council

<sup>68</sup> Submission no 9, Camden Council, p8

- 3.53 Given the frustrations expressed at some community misunderstanding, the Committee considers it imperative that Government take an active role in informing the proprietors of market garden operations about the risks and responsibilities with respect to the appropriate use and disposal of effluent.
- 3.54 This should be through the production of pamphlets or dedicating webpages to provide information about the environmental and health risks associated with applying untreated effluent to food crops. This information should be made available in a number of community languages and distributed to councils that have identified this as a problem in the area.

### RECOMMENDATION 3

**The Committee recommends that the Division of Local Government provide information about the environmental and health risks associated with applying untreated effluent to food crops. The Committee further recommends that this information be available in a number of community languages and be distributed to local government authorities who have recognised this as a problem in the area.**

#### *Food Act 2003*

- 3.55 Local councils are empowered under section 68 of the *Local Government Act 1993* to approve and subsequently inspect all systems in their local area. In the course of inspecting these systems, council officers may observe contamination of food crops with effluent. However, their powers of inspection do not extend to the ability to seize contaminated crops or prevent their sale. This was a key concern raised by several stakeholders.<sup>69</sup>
- 3.56 Camden Council submitted that protecting consumers from contaminated crops was beyond the scope of the *Local Government Act 1993*, and that regulating this was often ineffectual:
- Safeguards for protection of food production areas against contamination by wastewater are not a direct responsibility of local government ...
- ... It is not the specific intention of local government regulation in relation to OSMS to protect food for the consumer. Rather it is to regulate the collection, treatment and appropriate disposal of wastewater on site.
- ... Once aware of the breach, local councils can require the appropriate disposal of all future effluent in accordance with an approval, or require the reinstatement of the effluent application area or construction of a new effluent application area but it cannot direct the removal of the contaminated food from distribution. Ongoing monitoring and regulation is currently difficult, time consuming and often ineffectual.<sup>70</sup>
- 3.57 Stakeholders advised the Committee that they believed there was a gap in regulatory control between councils, the NSW Food Authority, NSW Health and

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<sup>69</sup> Submission no 9, Camden Council; Submission no 14, Eurobodalla Shire Council; Submission no 15, Penrith City Council, Submission no 24, Environmental Health Australia

<sup>70</sup> Submission no 9, Camden Council, p9



the NSW Department of Primary Industries with respect to responsibility for the production and harvesting of food that has been 'fertilised' with untreated effluent.<sup>71</sup>

- 3.58 This apparent shortcoming was similarly supported by councils who had were at the forefront of witnessing market gardens being irrigated with sewage, and who felt constrained in their ability to put a stop to the practice. Camden Council advised the Committee that while the NSW Food Authority has limited horticultural regulation responsibilities, and the Department of Primary Industries acts in an advisory capacity, local councils are not specifically referred to with respect to oversight or regulation of food that is produced within their remit.
- 3.59 Environmental Health Australia also submitted that the production, harvesting and sale of food that has been contaminated with effluent from on-site sewage management systems fall into a gap in regulatory control between councils, NSW Health, NSW Food Authority and NSW Department of Primary Industry.<sup>72</sup>
- 3.60 While some councils expressed concern at not having the power to remove crops thought to be contaminated with effluent, other councils requested clarity in knowing who the appropriate agency or agencies are to inform when contaminated crops have been observed. For example, Penrith City Council is located on Sydney's periphery and expressed concerns about regulatory confusion.
- Most Councils in NSW are only responsible for the inspection of retail food premises within their local government area therefore either the NSW Food Authority or Department of Primary Industries would be responsible for the regulation of food production where wastewater has been used. Clear guidelines need to be in place on how to respond in the event that a food crop has been contaminated, for example, who to refer the matter to.<sup>73</sup>
- 3.61 Environmental Health Australia submitted that powers to seize and destroy contaminated food crops needed to be conferred upon a Government agency, with information sharing procedures put in place so that councils may notify the agency when breaches or potential breaches are observed.<sup>74</sup>
- 3.62 Wollondilly Shire Council submitted that the NSW Department of Primary Industry and NSW Food Authority need to increase their roles and be given more power to protect food production from contamination by on-site sewage management systems.<sup>75</sup>
- 3.63 Although it was not considered appropriate that local councils be responsible for entering into premises where food crops are being irrigated with effluent, and seize crops, a common theme emerged that those authorities with existing

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<sup>71</sup> Submission no 24, Environmental Health Australia, at p4

<sup>72</sup> Submission no 24, Environmental Health Australia, p2

<sup>73</sup> Submission no 15, Penrith City Council

<sup>74</sup> Submission no 24, Environmental Health Australia, p3

<sup>75</sup> Submission no 13, Wollondilly Shire Council, p1

powers exercise current powers more frequently, or that the powers and responsibilities of each government body be clarified.

- 3.64 The *Food Act 2003* has been identified as a possible legislative recourse for when food crops are compromised by sewage. Section 60 of the *Food Act 2003* provides that either the Food Authority or a relevant enforcement agency can issue a prohibition order where food is prepared in unclean or unfit premises, using unclean or unfit equipment or transported in inappropriate vehicles. A prohibition order can take the form that no food intended for sale is to be handled in specified premises or in a specified way.
- 3.65 Section 38(a) of the *Food Act 2003* provides that an authorised officer may seize any food or any food preparation equipment or transport, where on reasonable grounds there is evidence that an offence under the Act is being committed. Similarly, section 38(b) provides that seizure of food items can occur where an authorised officer believes on reasonable grounds that the provisions under the Act or Regulations are not being complied with.
- 3.66 One of the means of achieving is clarifying under the *Food Act 2003* that 'unharvested crop' is included under the definition of 'food' where the unharvested crop is intended food intended for human consumption. Although the Committee is of the opinion that the current definition of 'food' under the *Food Act 2003* should sufficiently cover 'unharvested crop', an amendment would be useful to avoid doubt.
- 3.67 The Committee also supports the Food Authority in taking a more active role to engage with councils who suspect and report crop contamination. In particular, this would involve the Food Authority monitoring, investigating and – where appropriate – confiscating food from operations where food contamination is likely to have occurred.

#### RECOMMENDATION 4

**The Committee recommends that the *Food Act 2003* be amended to include 'unharvested crop' under the definition of 'food' where the unharvested crop is food intended for human consumption.**

#### RECOMMENDATION 5

**The Committee recommends that the Food Authority more actively engages with councils who suspect and report crop contamination to monitor, investigate and, where appropriate, confiscate food from operations where food contamination is likely to have occurred.**

#### RECOMMENDATION 6

**The Committee recommends that an expert panel considers whether councils and any service provider has a duty to report to the Food Authority where it becomes aware that a food crop has, or has potentially, become contaminated.**

## Chapter Four – Regulation of Sewage Systems

- 4.1 This Chapter examines the current regulation concerning on-site sewage management system, including applicable guidelines and standards, and relevant legislation. This Chapter also considers the lack of regulation and oversight in certain aspects of the sewage management industry.

### The Environment and Health Protection Guidelines

- 4.2 Following the Wallis Lake incident, there was impetus for reform and regulation of on-site sewage management systems. The result was the development by the Department of Local Government of the Environment and Health Protection Guidelines, *On-site Sewage Management for Single Households* in January 1998. These guidelines, more commonly referred to as the 'Silver Book', remains the primary reference document for on-site sewage management in NSW.
- 4.3 The guidelines were developed with a view to creating a consistent and comprehensive approach to the use of on-site sewage management systems in NSW and a regarded as a compendium of useful information.<sup>76</sup> They were developed through a working group of various Government agencies at the time, including, as it then was, the Department of Local Government, the Environmental Protection Authority, the Department of Health, and others.
- 4.4 The Silver Book provides user guidance for evaluating and selecting appropriate sites for on-site sewage management systems, discusses different types of systems available, identifies geographical considerations when installing new systems, and other operational strategies.<sup>77</sup>
- 4.5 Importantly, the guidelines are a guidance tool for factors to consider when installing and operating on-site sewage management systems, and are not intended to be an authoritative manual. Similarly, these guidelines have no regulatory force, and local governments and other State agencies do not have any powers to enforce compliance.
- 4.6 The Silver Book has generally been recognised as an important tool, and most stakeholders who provided evidence before the Committee recognised its importance in relation to domestic wastewater management in NSW. Councils submitted that they found the Silver Book to 'provide detailed recommendations and guidelines' and broadly recognise its value.<sup>78</sup>
- 4.7 However, the Committee also received numerous submissions and heard evidence from a wide range of stakeholders that criticised the guidelines. The

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<sup>76</sup> Environmental and Health Protection Guidelines, *On-site sewage management for single households*, January 1998

<sup>77</sup> The full text of the Silver Book can be found here:  
<http://www.dlg.nsw.gov.au/dlg/dlghome/documents/information/on-site.pdf>

<sup>78</sup> Submission no 3, Blacktown City Council, p1

criticisms were largely twofold. First, that since its initial release in 1998, the guidelines have not been properly reviewed or updated, and therefore its use as a suitable reference tool is faltering in light of technological changes to sewage management systems that have taken place since then. Second, that the guidelines are too weak insofar that they lack any regulatory force. These two issues are considered in further detail below.

### *Comparison with other States and Territories*

- 4.8 A clearer picture of the effectiveness of the Silver Book is best ascertained in comparison to the equivalent guidelines of codes in other jurisdictions.
- 4.9 **Victoria** – On-site wastewater management in Victoria is regulated by the *Environment Protection Act 1970*, which provides for the control of water, air and land pollution, waste and noise. The Environmental Protection Authority (EPA) administers the Act and has also written an enforceable code of practice, *Guidelines for Environmental Management Code of Practice – On-site Wastewater Management, 2008*.<sup>79</sup> All on-site wastewater management systems that treat up to 5000L per day must be installed, maintained and monitored in accordance with the code of practice. While the EPA is responsible for issuing certificates of approval to disposal/recycling systems, local governments are responsible for issuing permits for installing, maintaining and monitoring systems.
- 4.10 **Australian Capital Territory** – On-site wastewater management systems in the ACT must comply with the AS/NZ Standard *1547:2000 On-site domestic-wastewater management*. The ACT does not have its own code of practice or guidelines, but uses the NSW guidelines, *Environmental and Health Protection Guidelines On-Site Sewage Management for Single Households*.
- 4.11 **Northern Territory** – On-site wastewater management systems in the Northern Territory must comply with the *Code of Practice for Small On-Site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent, November 1996*. The Code sets out the approval requirements to install an on-site wastewater management system under the Public Health Regulation and specifies sizing and installation instructions for effluent disposal. The Code covers the various environmental conditions and housing types across the Territory.
- 4.12 **Queensland** – In Queensland, the *Standard Plumbing and Drainage Regulation 2003* provides that all on-site sewerage work in Queensland must comply with the *Queensland Plumbing and Wastewater Code 2007*. The Code specifies performance criteria for on-site wastewater management systems and criteria for the design of land application areas for treated effluent.
- 4.13 **South Australia** – The *Public and Environmental Health (Waste Control) Regulations 2010* prescribe that all on-site wastewater management systems in South Australia must comply with the South Australian Health Commission Code *Waste Control Systems – Standards for the Construction, Installation and Operation of Septic Tank Systems in South Australia 1995*. Non compliance with the Code is deemed to be an offence and legal proceedings may be initiated.

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<sup>79</sup> <http://www.epa.vic.gov.au/~media/Publications/891%202.pdf>

- 4.14 **Tasmania** – On-site wastewater management systems in Tasmania must be installed and operated in compliance with AS/NZ Standards 1547 *On-site domestic wastewater management*, 1546.1 *Septic Tanks*, 1546.2 *Water Composting Toilets*, 1546.3 *AWTS*, as specified in the *Tasmanian Plumbing Code 2006*. Local Councils are responsible for ensuring that on-site wastewater management systems in their municipality comply with the code.
- 4.15 **Western Australia** –Western Australian on-site domestic wastewater management systems must comply with the Western Australia Department of Health *Code of Practice for the Design, Manufacture, Installation and Operation of Aerobic Treatment Units*. The code provides advice and recommendations for installation, operation and maintenance protocols.
- 4.16 **New Zealand** –There are no national guidelines for on-site domestic wastewater management systems in New Zealand. Local councils are responsible for issuing approval and ensuring compliance, and many councils issue their own guidelines. In 2008, in response to concerns that failing wastewater systems were impacting negatively on human health and the environment, the New Zealand government established a consultation process to assess the benefit of introducing a National Environmental Standard for On-site Wastewater Systems. The consultation concluded that the proposed standard would add another layer of regulation and increase compliance costs without the guarantee of a significant level of health and/or environmental benefits.<sup>80</sup>

### *Currency of the Guidelines*

- 4.17 On the first of these issues, Prof. Geary described the guidelines as 'backward':
- Based on my experience and knowledge of domestic wastewater management in other states in Australian and New Zealand, I am of the view that the NSW regulations and Guidelines (Silver Book) are the most backward, and are not reflective of best practice management by current industry standards...<sup>81</sup>
- 4.18 Mr Whitehead, concurred, asserting that the guidelines:
- ... are in need of updating and improvement. They fall some way short of best practice.
- [The Guidelines] are for the most part a management document, based little on peer reviewed, published scientific literature and provide only limited technical guidance on system design, installation, servicing and maintenance. These guidelines are now significantly out of date and largely do not reflect industry best practice elsewhere in Australia and overseas.<sup>82</sup>
- 4.19 Local councils similarly expressed their view that, while often providing 'solid advice and guidance', the fact that the Silver Book was now more than a decade old meant it 'cannot address new technology and understanding'.<sup>83</sup> There was

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<sup>80</sup> Proposed national environmental standard for on-site wastewater systems, <http://www.mfe.govt.nz/laws/standards/wastewater-systems-standards.html>, accessed 5 September 2012

<sup>81</sup> Submission no 7, Assoc. Prof. Phil Geary, p1

<sup>82</sup> Submission no 23, Whitehead & Associates Environmental Consultants Pty Ltd, p1

<sup>83</sup> Submission no 14, Eurobadalla Shire Council, p4

broad agreement across the stakeholders that the Silver Book was outdated, and that a review and update to take into account new technologies was a matter of high priority.

- 4.20 Local councils have also expressed frustration with the delays in reviewing the guidelines:

The current document was published in 1998 and has been in review for several years. These guidelines help provide councils with direction and support in preparing and administering their on-site sewage management strategies and the review is long overdue.<sup>84</sup>

- 4.21 The Septic Tank Action Group recommended that the review be finalised and published immediately.<sup>85</sup>

- 4.22 These sentiments were echoed by other regional councils, including Yass Valley Council:

*The Environment and Health Protection Guidelines: On-Site Sewage Management for Single Households*, whilst still very useful, have been in existence since 1998. It is often indicated that a review of these guidelines remains in draft format. To enable Council Officers to ensure their on-site sewage management strategies contain the most up to date technical information it would be useful for this document to be reviewed and a new draft adopted, published and made available for use.<sup>86</sup>

- 4.23 Eurobodalla Shire Council similarly provided that use of the Silver Book 'cannot address new technology and understanding'.<sup>87</sup> Meanwhile, Camden Council stated that the review 'has been listed for many years and remains outstanding'<sup>88</sup> and the Southern NSW Environmental Health Forum stated that 'a review has been long overdue'.<sup>89</sup>

- 4.24 In its strongest terms, Camden Council submitted that the outdated guidelines are a 'major issue':

The guidelines are overdue for a comprehensive review, however the Department of Local Government has not seen the review as a priority. This is a major issue that must be remedied as quickly as possible. It is considered that the review should not be undertaken in a tokenistic fashion or without full industry and stakeholder consultation.<sup>90</sup>

- 4.25 The Committee was made aware by numerous stakeholders that the Silver Book was in fact reviewed and updated by a panel of experts in 2003/2004. The Committee was also advised that the final draft, however, remains unpublished. As such, the review remains in draft form and, given the subsequent delay, requires further updates.

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<sup>84</sup> Submission no 29a, Septic Tank Action Group, p3

<sup>85</sup> Submission no 29a, Septic Tank Action Group, p3

<sup>86</sup> Submission no 28, Yass Valley Council, p3

<sup>87</sup> Submission no 14, Eurobodalla Shire Council, p4

<sup>88</sup> Submission no 9, Camden Council, p25

<sup>89</sup> Submission no 20, Southern NSW Environmental Health Forum, p4

<sup>90</sup> Submission no 9, Camden Council, p11

- 4.26 Given the lapse of time since the Guidelines were first released, as well as the delay in the release of the updates to the Guidelines, the Committee considers it imperative that the process starts afresh, and that a new panel is convened to consider improvements and updates. The Committee considers that this should commence as a matter of priority.

## RECOMMENDATION 7

**That Committee recommends that, in light of technological improvements and other changes in sewage management in the past 15 years, a panel made up of technical and or professional experts, State and Local Government representatives, and non-Government representatives be convened to conduct a review to update and publish the *Environment and Health Protection Guidelines: On-Site Sewage Management of Single Households*, and that the review commence as a matter of priority.**

### *Enforceability of the Guidelines*

- 4.27 The second issue that drew widespread concern was the guidelines' lack of authority or enforceability. As noted, the Silver Book was never meant to be a code of practice for installers and operators of sewage management systems, but serves in a limited capacity to provide guidance and suggestions for on-site sewage management design, installation, operation and maintenance.
- 4.28 The issue of the Silver Book lacking any enforceable authority was canvassed by the Committee, and the question of whether the Silver Book should be replaced with a more stringent code of practice.
- 4.29 When examined by the Committee on whether an enforceable code was the best approach moving forward, Mr Whitehead advised:
- Rather than a code, the guidelines were said to be guiding principles, at the time when a more flexible performance-based approach was thought to be a good way forward. But in hindsight, the application of that has meant that it has been applied in a very variable way. Some regulators wave the book of rules say 'do all of those things' and others say, 'well, take it more liberally and use it as a set of guiding principles'.<sup>91</sup>
- 4.30 Industry representatives, such as BioSeptic, were similarly in favour of having an enforceable instrument:
- The Guidelines is quite comprehensive and if it were reviewed and brought up to date as necessary, it could be applied as a regulation. This would create an opportunity to improve the consistency standard of on-site wastewater disposal in NSW.<sup>92</sup>
- 4.31 Environmental Health Australia similarly provided that 'the final document should be enshrined in legislation so that all parties can be held accountable where necessary'.<sup>93</sup>

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<sup>91</sup> Transcript of Evidence, Hearing, 22 March 2012, p16

<sup>92</sup> Submission no 21, BioSeptic at p2

<sup>93</sup> Submission no 24, Environmental Health Australia, p4

4.32 On these issues, there was broad caution that any changes should not be overly prescriptive. Mr Whitehead cautioned against the temptation to move toward overly stringent regulation:

Whilst... the Guidelines were written as performance based guidelines, their interpretation by local Government regulators has often been prescriptive. This approach fails to recognise that the circumstances for on-site wastewater management systems vary ...<sup>94</sup>

4.33 In any case, the Committee recognises that any update to the Silver Book may need to include some enforceability that an expert panel considers appropriate. There is demonstrable support for a tightening and toughening of the Silver Book from many stakeholders, with many referring to models and codes in other States and Territories as examples of how this could be achieved (see below).

4.34 Precisely how enforceability provisions are drafted would best be left to the expert panel to determine. However, the Committee is of the view that any new guideline would need to be delicately drafted to include wide parameters to allow for varying considerations in sewage management operations, and allow for independent discretion for councils and service agents where compliance with a common standard is unnecessary.

4.35 The Committee appreciates the broad view evident by community representations that the current guidelines enshrine in the Silver Book is outdated. An initial review of the guidelines, which had commenced in 2003, but was never completed, would nonetheless also be outdated today given improvements in technology and new understandings of sewage management issues in the intervening years. The Committee considers it appropriate that a timely review of the guidelines recommence as a matter of priority. Any such review may be appropriately handled through an expert panel convened from representatives of the Division of Local Government, Department of Health, Department of Environment, representatives from local government authorities, academics and industry professionals.

## RECOMMENDATION 8

**The Committee recommends that the expert panel consider the best means of improving enforceability of the *Environment and Health Protection Guidelines: On-Site Sewage Management of Single Households (Silver Book)*.**

### *Australia / New Zealand Standard AS1547:2012*

4.36 The Australia / New Zealand Standard AS1547:2012 ('the Standard') was developed by Joint Standards Australia / Standards New Zealand WS-013 to create an effective and sustainable policy document pertaining to the proper management of domestic wastewater. Its core aim is to act as a best practice guide, and can act either as a standalone document or in concert with any Government approved policy document. The regulatory process is not considered as part of the standard, and its application does not circumvent or supersede other approvals required from regulatory authorities.

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<sup>94</sup> Mr Joe Whitehead, Transcript of Evidence, Hearing 22 March 201, pp 15 – 16



- 4.37 The Standard sets out performance objectives and criteria for effective and safe wastewater management. It is intended to be used by regulatory authority, system suppliers, designers and industry professionals, and required to be read in conjunction with other relevant regulations and guidelines. Although initially released in 2000, the standard was recently revised to take into account new technologies and other associated changes.
- 4.38 Although the Standard has no regulatory force in NSW, it has frequently been mentioned as a superior – and more current – document than the Silver Book. The reasons for this are varied: First, the Standard is more recent than the Silver Book, having most recently been updated in 2012 compared with the Silver Book which, as noted, remains unaltered since its 1998 release. Second, the Standard is regarded as containing more detailed and comprehensive technical information than the Silver Book.
- 4.39 On this issue, Prof. Geary advised that:
- Other States in Australia have Codes of Practice which are regularly revised and updated. In NSW there is only a 'guideline' ... The document is not helpful with respect to the design and sizing of on-site wastewater systems and there is no clear relationship with AS/NZS 1547, which is a significantly better document.<sup>95</sup>
- 4.40 The Septic Tank Action Group, with support from its 15 constituent councils advised the Committee that many councils prefer the standard over the guidelines:
- Council staff often lack the experience, knowledge and technical expertise in assessing installation and performance requirements of larger scale systems... Councils mainly rely on AS1547:2000 for guidance on the installation and operation requirements of domestic systems.<sup>96</sup>
- 4.41 The Southern NSW Environmental Health Forum identified that the Standard is better placed to provide guidance the design and installation of irrigation systems, given the Standard's consideration of soil classification and design of land application areas.<sup>97</sup>
- 4.42 Yass Valley Council similarly indicated that gaps existed in the Guidelines that could more comprehensively be covered by reference to the Standard, for example with respect to the design and installation of effluent disposal areas. On this point, the Council suggested the usefulness of having a clause inserted into legislation that requires Council management of on-site sewage management systems to be designed, installed, operated and maintained in accordance with the Standard.
- 4.43 Despite a Standard which exists directly and explicitly for on-site sewage management systems, Prof. Geary notes that there is no clear relationship between the Silver Book and the Standard, which, in his words, is also 'a

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<sup>95</sup> Submission no 7, Assoc Prof Phillip Geary, p2

<sup>96</sup> Submission no 29a, Septic Tank Action Group, p4

<sup>97</sup> Submission no 20, Southern NSW Environmental Health Forum, p4

significantly better document.<sup>98</sup> Prof. Geary similarly advises that 'there needs to be some sort of consistency there between the documents that exist'.<sup>99</sup>

- 4.44 On this, the Committee recognises that the two primary documents that exist in the construction and installation of on-site sewage management systems that have a limited bearing or relationship with each other.
- 4.45 In recognition of broad stakeholder preference of the Standards over the Silver Book, and for comprehensiveness, consistency, and limiting confusion, the Committee considers it crucial that a relationship between these documents is established.
- 4.46 This would best be achieved with references to the Standard in the Silver Book in circumstances where there are gaps in the Silver Book, and where it is appropriate that the Standard covers the field in any given respect.
- 4.47 The Committee considers it highly inefficient to have two primary reference documents that repeat each other and, where possible, overlap and duplication between the Standard and the Silver Book should also be removed or reduced. This could be achieved by appropriate edits or deletions to the Silver Book.

## RECOMMENDATION 9

**The Committee recommends that reference to the Australia/New Zealand Standard AS1547:2012 is included in the revised *Environment and Health Protection Guidelines: On-site Sewage Management of Single Households* where there are gaps in the Silver Book, and where it is appropriate, that the Standard covers the field. The Committee further recommends that appropriate edits or deletions are made to the Silver Book to minimise overlap and duplication.**

### Legislative Responsibilities

- 4.48 In NSW, the *Local Government Act 1993* and *Local Government (General) Regulation 2005* are the principal statutory authorities for local government with respect to the management duties, functions and oversight of domestic wastewater systems.<sup>100</sup> The management of domestic wastewater and on-site sewage management systems is almost entirely the responsibility of local councils.<sup>101</sup>
- 4.49 The *Protection of the Environment Operations Act 1997* and *Food Act 2003* also confer specific powers and functions on councils, with the *Fines Act 1996* providing certain additional enforcement powers.

### *Local Government Act 1993*

- 4.50 Section 68 of the *Local Government Act 1993* provides that the management of waste by a private homeowner can only be undertaken subject to obtaining prior

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<sup>98</sup> Submission no 7, Professor Philip Geary, p2

<sup>99</sup> Professor Phillip Geary, Transcript of Evidence, Hearing 22 March 2012, p3

<sup>100</sup> Submission no 30, NSW Department of Premier and Cabinet, at Appendix p1

<sup>101</sup> Submission no 30, NSW Department of Premier and Cabinet, p2

approval by a relevant local council. Approval to install the system is often conditional upon entering into a quarterly or annual inspection and service agreement. The management of waste is defined to include, amongst other things, the installation, construction or alternation of a waste treatment device or operation of a system of sewage management.

4.51 In turn, councils cannot approve of the installation certain treatment systems unless the systems have been accredited by NSW Health. As noted earlier, the accreditation process for on-site sewage management systems is governed by the *Local Government (General) Regulation 2005*. Accreditation does not apply to ancillary systems or land application systems.

4.52 The ability for councils to be the appropriate authority to provide approval for private wastewater management operations did not itself generate considerable discussion by stakeholders, and most were largely silent on whether it was appropriate that local councils be the relevant authority to provide such approval. For example, Port Macquarie – Hastings Council advised the Committee that the current framework in this regard is appropriate:

... it is considered that the framework of regulation afforded by the *Local Government Act* and Regulations is generally sufficient in relation to the management of on-site domestic wastewater. The framework provides for approvals and 'licensing' of these systems and a range of tools for enforcing the requirements of the legislation and guidelines published by the Division of Local Government.<sup>102</sup>

4.53 Similarly, Blacktown City Council advised the Committee that it is its 'position that there is an appropriate regulatory framework to minimise the risk of localised contamination from on-site sewage management in a domestic setting'.<sup>103</sup>

4.54 However, councils are also required to monitor the operation of on-site sewage management systems and ensure that those systems comply with environmental and public health standards.<sup>104</sup> As stated by Prof. Geary, 'The precise obligations on councils are not clearly articulated in legislation, as it is at the discretion of local councils as to the extent of inspection to be undertaken'.<sup>105</sup>

4.55 Councils are afforded further powers under section 124 of the *Local Government Act 1993* to issue orders on individuals or corporations. These orders include;

- (a) to comply with an approval;
- (b) to take action to maintain premises in a safe and healthy condition;
- (c) to store, treat or dispose of waste in a specified manner;
- (d) not to use or permit a human waste in a specified manner;

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<sup>102</sup> Submission no 5, Port Macquarie – Hastings Council, p1

<sup>103</sup> Submission no 3, Blacktown City Council

<sup>104</sup> Submission no 4, City of Sydney, p1

<sup>105</sup> Submission no 5, Port Macquarie – Hastings Council, p2

- (e) to connect premises to a public sewer (within 75 metres) when necessary to protect public health and safety.

Orders can be issued to the owner or occupier of the premises or to the person responsible for the waste or the container in which the waste is stored.

- 4.56 Again, councils did not criticise their role as the appropriate authority to issue Orders. However, there was some discussion as to whether section 124 of the *Local Government Act 1993* was sufficiently clear with respect to empowering councils to issue specific orders with respect to on-site sewage management systems, with many stakeholders wrote to the Committee seeking clarity that councils *can* make Orders with respect to sewage systems.
- 4.57 On these issues, it was suggested that a more specific order pertaining to on-site sewage management systems be provided for under the *Local Government Act 1993*, and that specific duty placed on owners or operators of on-site sewage management systems could be an avenue worth exploring.<sup>106</sup> It was also suggested that this approach may be an important measure to enable council officers with the ability to escalate an area of non compliance, without the need to issue a penalty notice.<sup>107</sup>
- 4.58 Although, in its current wording, the *Local Government Act 1993* does appear to enable councils to make such Orders, for the avoidance of doubt and in the interests of clarity, the Commission considers it useful that a specific order with respect to on-site sewage management systems be inserted under section 124.

## RECOMMENDATION 10

**The Committee recommends that the *Local Government Act 1993* be amended to insert a provision under section 124 that would enable local government authorities to make specific orders with respect to on-site sewage management systems.**

### *Local Government Regulation 2005*

- 4.59 The *Local Government Regulation 2005* includes supplementary material regarding the installation of on-site sewage management systems. In particular, clause 26 mandates the matters that are to accompany applications for an approval to install a system. This includes, amongst other things, a plan, details of a site assessment, and operations and maintenance requirements.
- 4.60 Clause 28 details those considerations that councils must take into account when determining whether to approve the application for installation, namely public health and environmental considerations.

### *Fines Act 2003*

- 4.61 A common theme emerging through councils is that beyond the requirement to approve and monitor sewage systems, there are difficulties with councils' power to compel operators of on-site sewage management systems to rectify faults

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<sup>106</sup> Submission no 5, Port Macquarie – Hastings Council

<sup>107</sup> Submission no 3, Blacktown City Council

discovered with their systems. Under section 628 of the *Local Government Act 1993*, failure to comply with any Order issued by Council could be punishable by a fine of up to 20 penalty units (\$2,200).

- 4.62 This fine schedule was the subject of some controversy by stakeholders, particularly local government authorities. Camden Council provided that, despite the maximum fine for failure to obtain prior approval before installing an on-site sewage management system being \$2,200, in proceedings in which they brought to court in 2008, a fine of only \$200 was issued. This was despite considerable cost to the council for legal representations, in addition to staff resources. Camden Council further submitted that the fines payable were 'not a sufficient disincentive or deterrent for some offenders'.<sup>108</sup>
- 4.63 Many other councils also considered the penalty provisions to be inadequate. Wollondilly Shire Council concurred, advising the Committee that 'the penalties for non compliance with Approvals to Operate and Orders under the *Local Government Act 1993* are far too lenient and do little to discourage bad/illegal practices'.<sup>109</sup>
- 4.64 Meanwhile, Environmental Health Australia similarly felt that the processes for councils to commence action, and the fines applicable on successful actions, were lacklustre. Specifically, they advised the Committee:
- The regulatory process for OSMS under the *Local Government Act 1993* and Regulations is generally cumbersome, time consuming and inefficient, with minimal financial penalties for owners or occupiers that do not address breaches.<sup>110</sup>
- 4.65 All parties that advised the Committee on this issue stressed the time sensitivity when on-site sewage management system are found by councils to be in state of disrepair or otherwise unfit for use, especially given the significant environmental and public health considerations. On this, there was an emphasis that speedier processes are required. The frustration of councils can again be understood by Camden Council's remark that:
- The service of Orders under section 124 of the *Local Government Act 1993* must observe natural justice. The process is slow and can take three months or more to resolution. Where Council believes circumstances constitute a serious risk to health or safety or an emergency, Orders under section 137 may be used. Again, the penalties are small, the process repeats and the problem remains unresolved.<sup>111</sup>
- 4.66 The Committee recognises the need to observe procedural fairness in the issuing and enforcing of penalty notices, and does not suggest changes to this process. Instead, the Committee considers it important that sufficient disincentives exist to reduce the rate of individuals ignoring or breaching Orders issues by councils in the first place.

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<sup>108</sup> Submission no 9, Camden Council, p22

<sup>109</sup> Submission no 13, Wollondilly Shire Council

<sup>110</sup> Submission no 24, Environmental Health Australia, p3

<sup>111</sup> Submission no 9, Camden Council, p12

- 4.67 Given the lengths and expense councils are required to undertake to enforce, a penalty infringement notice of \$330 appears inadequate. Such a low penalty runs the risk of councils not considering it worthwhile to pursue infringements, and existing problems with particular sewage system would remain unresolved.
- 4.68 One of the key concerns with the low fine is that is often lower than the cost of rectifying the fault, thereby easier and more cost effective to pay the fine, and frustrate the enforcement process. Penrith City Council suggested:
- ... that to ensure penalties act as a deterrent, the value of the penalty notice should be of a significant value and above the cost of an application to install/modify an on-site sewage management system.<sup>112</sup>
- 4.69 As such, the Committee considers it appropriate that the Penalty Infringement Notice for breaches of Orders with respect to on-site sewage management systems be raised to act as a more powerful disincentive against breaches of the Order. The Committee does not propose a specific penalty, but instead asks the Government to consider what a more appropriate penalty might be and requests that changes to the *Fines Act 1997* be made to effect the penalty increase.

## RECOMMENDATION 11

**The Committee recommends that the penalty for breaches of Orders with respect to on-site sewage management systems be raised to act as a more powerful disincentive against breaches of the Order. The Committee does not propose a specific penalty, but instead asks the Government to consider more appropriate penalties, and requests that changes to the *Fines Act 1997* be made to effect the penalty increase.**

### *Protection of the Environment Operations Act 1997*

- 4.70 A possible alternative pathway for local councils to enforce orders to clean-up or rectify faulty sewage systems is under the *Protection of the Environment Operations Act 1997*, although it is not generally recognised as a first line of regulation in many cases.
- 4.71 Under section 187(2A) of the *Protection of the Environment Operations Act 1997*, councils are able to appoint employees as authorised officers to undertake functions under the Act. Authorised officers have extensive powers, including the power to issue notices to enter and search premises where they reasonably suspect that industrial, agricultural or commercial activities are being carried out and pollution has been, is being, or is likely to be caused.<sup>113</sup> For premises that are solely residential, authorised officers must first obtain the prior permission of the occupier or be granted a search warrant.<sup>114</sup>

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<sup>112</sup> Submission no 15, Penrith City Council, p3

<sup>113</sup> *Protection of the Environment Operations Act 1997, s196(1)(a) – (b)*

<sup>114</sup> *Protection of the Environment Operations Act 1997, s197*

- 4.72 Following entry, authorised officers may take samples, inspect and test any equipment, take photographs or other recordings, and – importantly – seize anything in connection with an offence or suspected offence.<sup>115</sup>
- 4.73 The authorised officers then have a range of options to minimise, remove or destroy the pollution, or mitigate its effects. Part 4.2 enables appropriate regulatory authorities, including the councils, to direct individuals suspected of causing pollution to take such clean-up action as is specified in a clean-up notice and within such a period as is specified in the notice. The clean-up action required may include ascertaining the nature and extent of the pollution incident and of the actual or likely resulting pollution, as well as the preparing and carrying out of a remedial plan of action.
- 4.74 In the preparation of clean-up notices, councils may recover the administrative costs of preparing and giving clean-up notices.<sup>116</sup>
- 4.75 In addition, there are prevention notices which may be issued when a council reasonably suspects that an activity has been or is being carried out in an 'environmentally unsatisfactory manner'. A prevention notice requires the recipient to carry out preventative action including with respect to action with respect to the storage or disposal of any waste or any other substance. As with clean-up notices, councils may recover the administrative costs associated with the issuing of the notice.<sup>117</sup> Penalties for failure to comply with a prevention notice are considerable, and maximum penalties include a fine of \$250,000 for individuals or up to \$1,000,000 for corporations.<sup>118</sup>
- 4.76 At present, many councils indicated that reliance on the provisions under the *Protection of the Environment Operations Act 1997* is ambiguous or insufficient. Post Macquarie-Hastings Council submitted to the Committee that:
- The *Local Government Act 1993* does not effectively require the reporting of failures and/or pollution incidents by system owners to the local council. Reliance on the 'Duty to Report' provisions of the *Protection of the Environment Operations Act 1997* is not considered appropriate in the case of domestic on-site wastewater systems.<sup>119</sup>
- 4.77 Eurobodalla Shire Council also considered that the *Protection of the Environment Operations Act 1997* may not always be appropriate legislation as an alternative,<sup>120</sup> as well as being 'a bit vague and hard to enforce sometimes'.<sup>121</sup>
- 4.78 The key concern is that there is no specific reference to on-site sewage management systems, and councils may be unaware of the ability to rely on this Act as an appropriate authority to compel action.

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<sup>115</sup> *Protection of the Environment Operations Act 1997, s198*

<sup>116</sup> *Protection of the Environment Operations Act 1997, s94*

<sup>117</sup> *Protection of the Environment Operations Act 1997, s100*

<sup>118</sup> *Protection of the Environment Operations Act 1997, s97*

<sup>119</sup> Submission no 5, Port Macquarie – Hastings Council

<sup>120</sup> Submission no 14, Eurobodalla Shire Council, p4

<sup>121</sup> Rebecca Hardwick, Transcript of Evidence, Hearing 22 March 2012, p33

4.79 In addition, this Act requires the notification of any pollution incidents be reported to the appropriate regulatory authority. At present, the NSW Food Authority is considered the appropriate authority to report sewage pollution incidents. The Department of Premier and Cabinet advised the Committee that:

This enables closure action to be taken if the spill is in the vicinity of a shellfish harvest area or other food producing area.<sup>122</sup>

4.80 However, the Department added that few councils do in fact notify the Food Authority of incidents:

Few councils provide notification of spills or critical failures from domestic OSMS due to concerns that this might breach privacy provisions and identify the private landowner.<sup>123</sup>

4.81 The Committee did not receive any submissions from councils that would indicate that privacy was a factor in failing to report spills or critical failures.

4.82 The Committee notes that the responsibilities of councils, as well as their powers, lack sufficient clarity. The Committee notes that the language of the legislation could be altered to specifically refer to the councils as appropriate 'enforcement authorities'.

4.83 In addition, the Committee considers it appropriate that the Act specifically identify pollution incidents that result from faulty or improperly maintained on-site sewage management systems as one of the types of pollution incidents that councils have the authority to act on, and have the obligation to report to appropriate regulatory authorities to ensure food production and harvest areas are not critically affected.

## RECOMMENDATION 12

**The Committee recommends that the *Protection of the Environment Operations Act 1997* be amended to include pollution incidents which are caused, or suspected to be caused, by on-site sewage management systems be included as a type of pollution incident that councils have the power to compel clean-up and prevention orders on, and to which there is an obligation to report the incident to the appropriate regulatory authority.**

### Regulation of Service Agents

4.84 Like other home building trades such as plumbing and electricity, on-site sewage management systems, and in particular aerated wastewater treatment systems, require ongoing maintenance and upkeep. As with any trade, there is a significant amount of training required to ensure servicing done on these systems is both appropriate and effective.

4.85 However, unlike plumbers and electricians, there are no regulations requiring service technicians to hold any formal qualifications. As such, there is currently

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<sup>122</sup> Submission no 30, NSW Department of Premier and Cabinet, p5

<sup>123</sup> Submission no 30, NSW Department of Premier and Cabinet, p5



no formal statewide accreditation for technicians who service aerated wastewater treatment systems.

- 4.86 The lack of training requirements, coupled with lack of formal accreditation, was the subject of considerable concern by many of the stakeholders who presented evidence before the Committee.
- 4.87 On the issue of qualifications, many councils submitted that a fair degree of technical expertise is required with respect to both the installation and maintenance of aerated wastewater treatment systems. Camden Council indicated that appropriate servicing requires competency in a diverse range of disciplines.<sup>124</sup>
- 4.88 Wollondilly Shire Council supported more regulation:
- The servicing of aerated wastewater treatment systems (AWTS) is an unregulated industry despite Council's pleading with the State Government for years to do something about it... The industry needs to be regulated by NSW Fair Trading due to the fact that these service agents move between local government agencies.<sup>125</sup>
- 4.89 Southern NSW Environmental Health Forum similarly indicated its concern:
- There is currently no formal statewide accreditation for technicians who service Aerated Wastewater Treatment Systems. AWTS's incorporate many treatment processes, involving moving parts and electrical components. While the systems are subject to extensive testing and evaluation before a statewide Certificate of Accreditation is issued by NSW Health, service technicians currently do not require any formal qualification or experience to service these installations.<sup>126</sup>
- 4.90 As expected, the absence of proper industry oversight or stipulated minimum standards has led to concerns that some service contractors are not performing to community expectations or in a satisfactory manner. As Yass Valley Council explained, this can made already bad problems worse as 'the situation can exacerbate existing issues with a malfunctioning system'.<sup>127</sup> In response, Yass Valley Council also added its voice in support of a licensing system or the establishment of 'a legally based set of criteria which enables council officers to successfully control and regulate service contractors operating in their area'.<sup>128</sup>
- 4.91 The lack of accreditation has also prompted concerns that, not only is there a lack of acceptable performance standards to hold operators accountable, but that there are no mechanisms to stop rogue operators who are not qualified or fail to provide any level of appropriate maintenance. On this, Camden Council informed the Committee at its hearing that 'often we talk with service agents. Some of them are good but they are competing... with rogue operators. It often does present problems'.<sup>129</sup>

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<sup>124</sup> Submission No 9, Camden Council, p15

<sup>125</sup> Submission No 13, Wollondilly Shire Council

<sup>126</sup> Submission No 20, Southern NSW Environmental Health Forum, p20

<sup>127</sup> Submission No 28, Yass Valley Council, p2

<sup>128</sup> Submission No 28, Yass Valley Council, p2

<sup>129</sup> Fiona Stalgis, Transcript of Evidence, Hearing 22 March 2012, p40

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REGULATION OF SEWAGE SYSTEMS

- 4.92 On this, Penrith City Council concurred, advising the Committee that '[it] would hold a similar view' and again reiterated its preferred solution that 'service agents should be accredited and trained as part of that accreditation, and their accountability should be to a State body like fair trading'.<sup>130</sup>
- 4.93 In a confidential submission before the Committee, one stakeholder in the industry indicated their concerns regarding the 'quality assurance and due diligence of private inspection companies... [including] several anecdotal reports of commercial, AWTS inspectors pulling into driveways, writing the report in the car and leaving an invoice without having undertaking the required inspection'.<sup>131</sup> Other representations before the Committee noted that it was not entirely uncommon for inspectors for inspectors to drop chlorine tablets in tanks without proper inspections being undertaken.
- 4.94 The Septic Tank Action Group (STAG) indicated its frustration at what it identified as a 'glaringly problematic issue'. In an attempt to get around the problems created by a lack of accreditation, the Group have placed safeguards at the local level:
- At present, councils do not have any control over that servicing agent. We can go back to the homeowner and say you have not had your system serviced in accordance with your approval to operate, which is our legal mechanism to having the system regularly serviced. That is an impost on the homeowner, which is unfair. They are contracting someone to do a job. It is a tedious process for everybody to take.<sup>132</sup>
- 4.95 In response, the STAG advised it had developed its own policy:
- The STAG has developed its own policy that other councils can adopt for accreditation. It is not so much accreditation as approval for servicing agents to operate in their area. They must be able to tick boxes to say, yes, we are confident that the people who service these systems have appropriate skills and knowledge to do so.
- 4.96 However, they added an important caveat:
- There are questions about trade practices and restriction of trade and councils are wary of that issue and do not want to open up councils to liability with regard to court action.<sup>133</sup>
- 4.97 The down flow effects of the lack of regulation has created additional burdens for councils to create their own systems to try and ensure service agents operating in their area have the skills, knowledge and intention of servicing appropriately. Similarly, councils appear to have the difficult task of trying to ensure rogue operators are discouraged from working within council boundaries.

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<sup>130</sup> Anthony Price, Transcript of Evidence, Hearing 22 March 2012, p40

<sup>131</sup> Submission No 19, Confidential

<sup>132</sup> Transcript of Evidence, Hearing 22 March 2012, p22

<sup>133</sup> Transcript of Evidence, Hearing 22 March 2012, p22

- 4.98 The fact that there are 152 local government areas in NSW exacerbates the problem as, without uniform process across the different councils, rogue operators can simply be displaced from one council to a neighbouring one.
- 4.99 Although groups such as the STAG demonstrate the strength of cooperative approaches, the onus on local government to devise responses to the lack of a uniform standard presents complications. Trying to accommodate the vast number of councils to present a common standard will always be difficult, and it remains unfair to expect councils to develop and adopt the standard themselves. In any case, without associated enforcement powers, councils have limited authority to regulate the industry.
- 4.100 In response to concerns put by the Committee, the Sydney Catchment Authority, representing the Government, cautioned that there will always be rogue operators and that facilitating accreditation and training is only a part measure, as subsequent auditing performance would still be required.<sup>134</sup>
- 4.101 Despite possible and foreseeable shortcomings, it was widely recognised that a formalised licensing system would enable a greater degree of control and assist in minimising opportunities by rogue or sub-standard operators to operate in the market. The Committee supports this view.
- 4.102 The Committee also recognises that the installation and maintenance of on-site sewage management systems, in particular aerated wastewater treatment systems, is largely unregulated, despite the technical knowledge and skill required to perform such tasks. By comparison, other like tradespeople – such as plumbers, electricians or gasfitters – are subject to regulation, including the duty to hold a licence or be accredited with a recognised body, before they can practice.
- 4.103 The regulation of these industries appears largely comprehensive, with appropriate oversight functions conferred to NSW Fair Trading. Given these considerations, the Committee recommends the development of appropriate regulations to bring service agents of on-site sewage management systems under similar proper oversight.

### RECOMMENDATION 13

**The Committee recommends that a formal licensing system be developed and introduced for the installation and maintenance of on-site sewage management systems, including appropriate training courses, accreditation processes, and performance audits. This should include the means by which councils can issue an infringement notice to the manufacturers and/or installers for faulty manufacturing and/or installation, for an appropriate, specified time.**

**The Committee recommends that industry oversight of the installation and maintenance of on-site sewage management systems be referred to NSW Fair Trading.**

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<sup>134</sup> Robert Banens, Transcript of Evidence, Hearing 22 March 2012, p48

- 4.104 The Committee also considers it appropriate that there should be standardised inspection procedures and reporting requirements to ensure across-the-board consistency with the servicing of systems. At present, individual servicing contractors are required to copy councils in on servicing reports for specific operational systems.<sup>135</sup> As such, what should be an otherwise straight forward process is complicated by the need for all councils to maintain individual databases.
- 4.105 One of the solutions that the Septic Tank Action Group made was that a statewide reporting system be developed. A key component of the suggestion was the creation of an electronic portal to 'allow servicing contractors to integrate the submission of servicing reports to each councils' electronic management system'.<sup>136</sup>
- 4.106 Another advantage of a common database would be to allow councils the opportunity to review inspection procedures that have taken place in neighbouring councils. This is of particular use where concerns exist that there is a faulty or improperly maintained system in one council area, which has the potential to affect water or land in a neighbouring council.
- 4.107 The Committee agrees. Having multiple templates and varying reporting requirements is inefficient and unnecessary. A common reporting standard, accessible and viewable through a common portal, would greatly assist local councils and service agents in their inspection duties.

## RECOMMENDATION 14

**The Committee recommends that Fair Trading or the Division of Local Government develop a common reporting standard and template to be submitted through a State Government electronic portal and that the reports should be filed on a common database. Any such database should be accessible by all councils.**

## Wastewater Management Advisory Committee

- 4.108 The Committee supports efforts by Government to produce additional material that provides ongoing support and guidance for local councils as part of their wastewater management programs. As noted by Cessnock City Council, 'the production of materials at State level will prevent a duplication of resources at a local level and will ensure a consistent message is being delivered to owners of on-site sewage management systems'.<sup>137</sup>
- 4.109 One of the ways this can be achieved is by the establishment of an advisory committee, funded by and under the auspices of the Government. This committee could also be funded by license fees.
- 4.110 NSW Health's Accreditation Guidelines refers to the establishment of such a committee, the Wastewater Management Advisory Committee as:

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<sup>135</sup> Submission No 29a, Septic Tank Action Group, p2

<sup>136</sup> Submission No 29a, Septic Tank Action Group, p2

<sup>137</sup> Submission no 29, Cessnock City Council

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Responsible to the Department and Director-General in the accreditation process and produces appropriate guidelines. Membership includes representatives from the Environmental Health Branch of NSW Health, Departments of Land and Water Conservation, Local Government, Urban Affairs and Planning, and the Environmental Protection Authority; and the Australian Institute of Environmental Health.<sup>138</sup>

- 4.111 According to the Southern NSW Environmental Health Forum, the purpose of the Committee is 'to vet and process [accreditation] in an open and transparent manner'.<sup>139</sup> However, according to Eurobodalla Shire Council, 'the Committee has not convened in the last five years' while the Southern NSW Environmental Health Forum advises it has not been convened at all.<sup>140</sup>
- 4.112 The Committee considers it important that the Wastewater Management Advisory Committee, or similar body, be reconvened and that it is constituted by representatives from appropriate Government bodies and stakeholders. The Committee takes particular note that some of the Government authorities mentioned in the Accreditation Guidelines may no longer exist as it did when the Accreditation Guidelines were issued in 2001, and as such, membership appointments may need to be varied.

## RECOMMENDATION 15

**The Committee recommends that NSW Health reconvene the Wastewater Management Advisory Committee, or a similar body, and ensures that membership of that Committee is comprised of appropriate Government authorities and other stakeholders.**

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<sup>138</sup> <http://www.health.nsw.gov.au/publichealth/environment/water/wastewater.asp>

<sup>139</sup> Submission no 7, Southern NSW Environmental Health Forum

<sup>140</sup> Submission no 14, Eurobodalla Shire Council, p4

## Chapter Five – Local Government Approaches

- 5.1 This Chapter considers the cooperative and funding approaches taken by local government authorities to deal with the issues posed by on-site sewage management systems.

### Sewage Management Plans

- 5.2 Local councils develop and implement sewage management plans in accordance with their responsibilities under the *Local Government Act 1993* and *Local Government (General) Regulation 2005*. A sewage management framework would generally include information to be contained in an application to install, performance standards, accreditation of particular systems and approval control of the land application area.<sup>141</sup>
- 5.3 It is widely accepted that councils need appropriate ground management plans to conduct routine inspections to assess the performance of systems.<sup>142</sup> Many councils informed the Committee of their relevant sewage management plan. These plans often included a comprehensive policy, allocation of full time staff, and earmarked funding to ensure adequate and periodic inspections.
- 5.4 The Committee received submissions from some councils demonstrating that the introduction of sewage management plans had resulted in significant improvement of the operation of sewage systems in the council area. For example, the submission from Eurobodalla Shire Council highlighted that since the commencement of the *Eurobodalla Shire Council OSMS Monitoring Program* in 1999, the non-compliance rate of systems had dropped from 75% to 15%.<sup>143</sup>
- 5.5 However, the Committee also received evidence that a number of councils in New South Wales do not have sewage management plans in place. Richmond Valley Council submitted that not all councils undertake regular inspections for a number of reasons:
- Presently not all Councils undertake inspections of existing on-site sewage management systems. These Councils only inspect new installations or following a complaint. Reasons for not undertaking inspections of existing on-site sewage management systems range from politics within a Council to funding. This is of particular concern for coastal Councils that have oyster leases or are a holiday destination or that have waterways that are used for recreational purposes.<sup>144</sup>
- 5.6 A 2011 survey conducted by the Southern NSW On-site Sewage Management Special Interest Group of councils in southern NSW found that 28% of councils had not developed a sewage management plan. They submitted that this caused

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<sup>141</sup> Submission no 30, Department of Premier and Cabinet, pp 2 – 3

<sup>142</sup> Submission no 7, Professor Phil Geary, University of Newcastle, p3

<sup>143</sup> Submission no 14, Eurobodalla Shire Council, p5

<sup>144</sup> Submission no 10, Richmond Valley Council, p2

difficulties for those councils who did have plans in place, as property owners and tradespersons questioned the variable standards across different local government areas:

Councils that apply the legislation receive criticism from property owners, plumbers and builders who draw attention to adjoining local councils where the legislation, policies and guidelines may not be enforced.

This creates confusion for installation and maintenance companies who cross local government boundaries and are exposed to highly variable standards and levels of enforcement.<sup>145</sup>

- 5.7 A 2005 review of local council's sewage management programs conducted by the NSW Division of Local Department found that many councils found it difficult to generate the resources necessary to fund inspections and compliance programs and funding has been identified as a key barrier to councils developing and implementing comprehensive inspection plans. Arguably, this problem is more pronounced in regional areas where a more limited capacity to raise revenue is met with a greater number on a per capita basis of sewage management systems, together with a great spread of their location given likely rurality and distance.
- 5.8 This tends to correlate with a theme in which there is a broadly inverse relationship between the population of the council and the number of on-site systems requiring inspection, with the more sparsely populated rural councils responsible for a greater proportion of inspecting sewage systems. Metropolitan councils, by contrast, did not appear to face such problems.
- 5.9 On this point, Gilgandra Shire Council advised the Committee that it 'has over 1000 on-site sewage management systems throughout the shire and do not have the funding or the resources to complete regular inspections'.<sup>146</sup>
- 5.10 However, the experience of councils in overseeing sewage systems operations within its boundaries has been mixed. As noted, although few have argued that local councils should *not* be the responsibility of local government, deficiencies with the current arrangements have been identified. In its submission to the Committee, the NSW Department of Premier and Cabinet, recognised that success relies on local councils levying sufficient fees, and committing appropriate resources, to ensure the operability and efficiency of any oversight program.<sup>147</sup>
- 5.11 Further, the lack of a common protocol across all councils on how to act when faults are identified, was recognised as a problem. Yass Valley Council, for instance, stated that:

...there appears to have been little or no follow up action from the Department of Local Government who have not developed a strategy to ensure that councils

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<sup>145</sup> Submission no 20, Southern NSW Environmental Health Forum, p1

<sup>146</sup> Submission no 1, Gilgandra Shire Council

<sup>147</sup> Submission no 30, NSW Department of Premier and Cabinet, p4

prepare and enforce legislation in relation to the regulations of on-site sewage management systems.<sup>148</sup>

- 5.12 The Septic Tank Action Group similarly identified the lack of a post-inspection protocol as a problem, and recommended that the Division of Local Government develop a clear and concise protocol to give councils a consistent approach in relation to this matter.<sup>149</sup>
- 5.13 Although there was broad appreciation that powers do exist for councils to exercise when there has been a failure to obtain prior approval to installing an on-site sewage management systems, or a failure to comply with an order to rectify a faulty on-site sewage management system, some councils expressed a firm preference that there be a coordinated approach facilitated by the State Government. This would equip councils with knowledge of best practice once a breach has occurred, and ensure a measure of greater consistency is achieved across all councils.
- 5.14 The Committee recognises the problems that many smaller councils have in devising their sewage management plants, especially with respect to post-inspection protocols where an on-site sewage system is found to require repairs and where there is an absence of guidance by the Division of Local Government.
- 5.15 As such, the Committee recommends that the Division of Local Government considers developing guidelines to assist councils in their development of sewage management plans, with a particular emphasis on post-inspection protocols when a system is found to require repairs or upgrades.

## RECOMMENDATION 16

**The Committee recommends that the Division of Local Government produces guidelines to assist councils to develop sewage management plans, with a particular emphasis on post-inspection protocols when a system is found to require repairs or upgrades.**

### Cooperative Arrangements

- 5.16 One of the submissions received was from the Septic Tank Action Group, which has been referred to quite extensively in this report. As mentioned, this group is based in the Hunter region and surrounds, and comprises fifteen councils that regularly meet to exchange ideas and pool resources with respect to the management of on-site sewage systems. The group meets on a quarterly basis. The Committee was advised of the cooperative nature of the group:

Generally ... we come together and try to set some ground rules in applying a consistent approach to the regulation of local government across local government boundaries and develop common policies that we can implement that each council would be happy to implement, again to coordinate consistent approach.<sup>150</sup>

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<sup>148</sup> Submission no 28. Yass Valley Council, p2

<sup>149</sup> Submission no 29, Septic Tank Action Group

<sup>150</sup> Malcolm Hunter, Transcript of Evidence, Hearing 22 March 2012, p21



- 5.17 The Committee recognises the value of cooperative approaches, such as those offered by the Septic Tank Action Group, as a way of overcoming funding issues and learning about management models practiced by neighbouring councils. To this end, the Committee applauds such groups.
- 5.18 The Committee also identifies the Regional Organisation of Councils (ROC) as another possible avenue by which councils can congregate. These organisations are voluntary organisations where local councils collaborate on a regional basis to undertake common projects and advocate on agreed regional positions and priorities. They undertake joint initiatives to avoid duplication where possible.
- 5.19 The Committee recognises the value in the ROCs as a possible forum in which other councils can cluster to create groups similar to the Septic Tank Action Group. Given one of the key issues identified by the Committee has been a lack of consistency in sewage management, especially where responsibility is left to the councils to administer, a cooperative regional approach would assist in ameliorating some of these issues. The Committee was particularly impressed by the structure and operation of the Septic Tank Action Group, and recommends other groups emulate the model provided by this group.

## RECOMMENDATION 17

**The Committee recommends that local councils cluster in regional groups, such as through the Regional Organisation of Councils, to exchange ideas and collaborate on joint projects with respect to the management of sewage systems in the regional area, using the Septic Tank Action Group as a model.**

## Funding Arrangements

- 5.20 Revenue policy and the allocation of funds for the council's sewage management activities are determined by council in line with the *Local Government Act 1993*. Application, renewal and inspection fees are set by councils.
- 5.21 The Department of Premier and Cabinet has noted that 'councils are encouraged to implement revenue policies that are transparent and cost-reflective and balance public benefit and user pays principles, using a mix of revenue sources'.<sup>151</sup>
- 5.22 These revenue sources include a variety of components, including income sourced from 'approval to operate' fees, inspection fees, charges and penalties, and general revenue derived from rates.
- 5.23 Section 608 of the *Local Government Act 1993* enables councils to charge and recover fees for a service it provides including receiving an application for approval, granting an approval, making an inspection and issuing a certificate in conjunction with the council's regulatory functions, including with respect to sewage management.
- 5.24 Additional revenue has, in the past, been supplemented by the State Government when it funded each local council as part of the Septic Safe Program

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<sup>151</sup> Submission no 30, NSW Department of Premier and Cabinet, p3

run by the Division of Local Government. This program was developed as a 'statewide partnership between the NSW Government, local councils and industry ... to support better management of on-site sewage management systems.'<sup>152</sup> However, the Committee understands that the funding earmarked by the program has since ended, and the Committee is unaware of the scope or status of the program as it currently exists.

- 5.25 Given that funding and revenue-raising have been consistent problems by many councils, particularly in regional NSW, the Committee considers there to be value in reviving the Septic Safe Program, or a similar scheme, with a view to ensuring councils are appropriately funded to carry out their services and responsibilities with respect to on-site sewage management.
- 5.26 Once again, priority should be granted to those councils that have a greater number of sewage systems that require monitoring, or where the rate-raising ability of the council is limited, or a composite of the two factors.
- 5.27 On this point, the Committee recommends that the Division of Local Government considers reviving the Septic Safe Program, or another program along the lines of which the Septic Safe Program was implemented.

## RECOMMENDATION 18

**The Committee recommends that the Division of Local Government revives the Septic Safe Program with a view to ensuring councils are appropriately funded to carry out their services and responsibilities with respect to on-site sewage management.**

## Future Planning

- 5.28 The Committee recognises the considerable task ahead at updating guidelines and regulations with respect to on-site sewage management systems, developing thorough inspection and testing procedures, tightening regulations for service providers, and examining cooperative and funding approaches for local government. As such, the Committee recognises that measurable improvements to the sewage management system landscape will take many years.
- 5.29 It was not the intent of this Inquiry to identify all the problems on this issue, as this would go beyond the scope of the Inquiry. Nor was it the intent to identify all the solutions to the problems identified, as this too requires considerable knowledge and expertise. The Committee has sought to illustrate the key issues that Government and local government may wish to consider going forward, and suggested ways in which the issues can be dealt with.
- 5.30 The Committee considers the recommendations it has proposed to be vital to tightening regulation of on-site sewage management systems, providing further guidance for operators and councils, supporting the local aquaculture industries to handle contamination events, and educate the community as to the risks of untreated effluent. The Committee hopes that these recommendations, if adopted, will go some way to alleviating the concerns it has identified, and

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<sup>152</sup> <http://www.environment.nsw.gov.au/water/septicssystems.htm>

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LOCAL GOVERNMENT APPROACHES

encourages Government and local government to continue thinking and talking about the issues.

## Appendix One – List of Submissions

|     |   |
|-----|---|
| 1   | Gilgandra Shire Council                                       |
| 2   | Tweed Shire Council   |
| 3   | Blacktown City Council  |
| 4   | City of Sydney  |
| 5   | Port Macquarie Hastings Council                               |
| 6   | Strathfield Council   |
| 7   | University of Newcastle                                       |
| 8   | Sutherland Shire Council                                      |
| 9   | Camden Council  |
| 10  | Richmond Council  |
| 11  | Bega Valley Shire Council                                     |
| 12  | Steinhardt's Oysters  |
| 13  | Wollondilly Shire Council                                     |
| 14  | Eurobodalla Shire Council                                     |
| 15  | Penrith City Council  |
| 16  | Mr Michael Wright   |
| 17  | Compost Toilet Systems  |
| 18  | NSW Farmers' Association                                      |
| 19  | Confidential  |
| 20  | Southern NSW Environmental Health Forum                       |
| 21  | Bioseptic   |
| 22  | Confidential  |
| 23  | Whitehead & Associates Environmental Consultants Pty Ltd      |
| 24  | Environmental Health Australia (New South Wales) Incorporated |
| 25  | Women's Industry Network Seafood Community                    |
| 26  | Confidential  |
| 27  | Shoalhaven City Council                                       |
| 28  | Yass Valley Council   |
| 29  | Cessnock City Council   |
| 29a | Septic Tank Action Group                                      |
| 30  | NSW Department of Premier and Cabinet                         |

INQUIRY INTO THE REGULATION OF DOMESTIC WASTEWATER  
LIST OF SUBMISSIONS

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|    |                            |
|----|----------------------------|
| 31 | Peak Oyster Advisory Group |
| 32 | Mr Patrick Garry           |

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## Appendix Two – List of Witnesses

22 March 2012, Macquarie Room, Parliament House

| Witness                           | Position and Organisation   |
|-----------------------------------|---|
| Associate Professor Phillip Geary | School of Environmental and Life Sciences<br><i>University of Newcastle</i>                     |
| Mr Justin Crosby                  | Policy Director   |
| Mr Brett Guthrey                  | Horticulture Farmer   |
| Mr Kevin McAsh                    | Chairman, Oyster Farmers Committee<br><i>NSW Farmers' Association</i>                           |
| Mr Joe Whitehead                  | Director, Whitehead & Associates Environmental<br>Consultants Pty Ltd                           |
| Mr Malcolm Hunter                 | Chair   |
| Mr John Roseland                  | Senior Health and Building Surveyor, Wyong<br>Shire Council<br><i>Septic Tank Action Group</i>  |
| Ms Deborah Lenson                 | Divisional Manager, Environmental Services  |
| Ms Rebecca Hardwick               | Environmental Health Officer<br><i>Eurobodalla Shire Council</i>                                |
| Mr Anthony Price                  | Environmental Health Coordinator<br><i>Penrith City Council</i>                                 |
| Ms Jayne Christie                 | Environmental Health Officer  |
| Ms Fiona Stalgis                  | Team Leader for Environment and Health Branch<br><i>Camden Council</i>                          |
| Mr Anthony Zammit                 | Manager, NSW Shellfish Program<br><i>NSW Food Authority</i>                                     |
| Mr Robert Mitchell                | Principal Project Officer, Water and Sewerage<br><i>Office of Water</i>                         |
| Mr Robert Banens                  | Environmental Engineer, Team Leader,<br>Assessments<br><i>Sydney Catchment Authority</i>        |
| Mr Timothy Gippel                 | Senior Policy Officer, Fishing and Aquaculture<br><i>Department of Primary Industries</i>       |
| Mr Vaughan MacDonald              | Leader Development, Division of Local<br>Government<br><i>Department of Premier and Cabinet</i> |
| Ms Alison White                   | Director, Metropolitan Water Directorate<br><i>Department of Finance and Services</i>           |

## Appendix Three – Extracts from Minutes

### Minutes of Proceedings of the Legislative Assembly Committee on Environment and Regulation (no. 4)

9.59 a.m. 18 October 2011  
Room 1043, Parliament House

#### Members Present

Mrs Davies, Mr George, Mr Parker, Mr Patterson and Ms Tebbutt.

*Officers in Attendance:* Vicki Buchbach; Jason Arditj; Jacqueline Isles

#### 1. Confirmation of Minutes

Resolved, on the motion of Mr Parker, seconded by Mrs Davies, that the minutes of the meeting on Friday, 26 August 2011 be confirmed.

2. \*\*\*\*

#### 3. Possible Future Inquiry Topics – Background documents for discussion

- i. On-site sewage management and agriculture

The Committee deliberated on proposed terms of reference for an Inquiry addressing concerns raised in Camden Council Discussion Paper (previously distributed) concerning on-site sewage management and agriculture.

Resolved on the motion of Mr Parker, seconded by Ms Tebbutt:

That the Committee inquire into the regulation of domestic wastewater with particular reference to:

- a) The adequacy of safeguards to ensure food safety, and to protect against the risk of localised contamination, in food production areas;
- b) The appropriateness of current regulatory arrangements in relation to the management of domestic wastewater;
- c) The adequacy of inspection procedures and requirements to report incidents;  
and
- d) Any other related matter

\*\*\*\*

4. \*\*\*\*

The Committee adjourned at 10.23 a.m. until a date to be fixed in the last sitting week of November, commencing on Tuesday 22 November, 2011.

## **Minutes of Proceedings of the Legislative Assembly Committee on Environment and Regulation (no. 5)**

1.15 p.m. Friday, 25 November 2011

Room 1043, Parliament House

### **Members Present**

Mr Patterson (Chair) Mr Parker, Ms Tebbutt.

### **Apologies**

Mrs Davies, Mr George.

*Officers in Attendance:* Vicki Buchbach; Jason Arditj; Jacqueline Isles.

### **1. \*\*\*\***

#### **Confirmation of Minutes**

Resolved, on the motion of Mr Parker, seconded by Ms Tebbutt, that the minutes of the meeting on

Tuesday, 18 October 2011 be confirmed.

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#### **Inquiry into the Management of Domestic Wastewater**

- i. Submissions received to date to be published on the Parliament's website. The submissions were from Gilgandra Shire Council and Tweed Shire Council.

Resolved on the motion of Mr Parker, seconded Ms Tebbutt, that: The Committee receives and authorises the publication of the submissions to this Inquiry, and orders that they be placed on the Parliament's website.

- ii. Discussion of possible site visits and appropriate dates.  
The Committee deliberated on possible areas for site visits and agreed to undertake site visits in early 2012 at a time and place to be agreed to by correspondence and to be guided by the information provided in submissions regarding the selection of sites.

Ms Tebbutt requested further briefings so that the Committee could be informed about the full range of perspectives of stakeholders in relation to the Inquiry. The Chair noted that letters requesting submissions had been sent to a range of stakeholders.

The Committee agreed to meeting again at a date to be determined in the first week of February. The Committee adjourned at 2.12 p.m.



## MINUTES OF PROCEEDINGS OF THE COMMITTEE ON ENVIRONMENT AND REGULATION (NO. 6)

12:00 pm, Wednesday, 1 February 2012

Waratah Room, Parliament House

### Members Present

Ms Davies (Deputy Chair), Mr Patterson (Chair), Mr Parker, Ms Tebbutt

### Apologies

Apologies were received from Mr George.

### Officers in Attendance

Jason Ardit, Vicki Buchbach, Jacqueline Isles

The Chair commenced the meeting at 12.04 pm.

### 1. Confirmation of Minutes

Resolved, on the motion of Mr Parker, seconded by Ms Tebbutt:

That the minutes of the meeting held on Friday, 25 November be confirmed.

2. \*\*\*\*

### 3. Inquiry into the Management of Domestic Wastewater:

- i. Submissions received to date

Resolved, on the motion of Mr Parker, seconded by Ms Tebbutt:

That the Committee accepts the submissions and agrees

- to publish those submission or parts of submissions that are not confidential in the table on its website; and
- to treat as confidential those listed as such in the table

- ii. Discussion of possible site visits and appropriate dates

The Chair proposed that Members bring specific suggestions to the next meeting or forward them to the Committees Office for inclusion on the next meeting agenda.

### 4. General Business

Members discussed possible hearing dates and agreed to schedule a hearing during the week beginning Monday 19 March. The Chair requested that Committee staff prepare a suggested list of witnesses on the basis of the submissions received.

### 5. Briefing from the NSW Farmers' Association on issues with onsite sewage management systems

The Chair welcomed the following representatives of the NSW Farmers' Association:

Mark Bulley (Port Macquarie, Oyster producer) Kevin McCash (Clyde River, Oyster producer); Graeme Ratford (Horticulture producer); Brett Guthrey (Horticulture producer); Justin Crosby (NSW Farmers Policy Director); and Frances Tolson (NSW Farmers Regional Services Manager). Following the presentation, the Chair and Committee members thanked the representatives for their attendance.

The committee adjourned at 1.30 pm until a date to be determined.

## **MINUTES OF PROCEEDINGS OF THE COMMITTEE ON ENVIRONMENT AND REGULATION (NO. 7)**

Tuesday, 21 February 2012 at 1.33 pm  
Room 1136, Parliament House

### **Members Present**

Mr Patterson (Chair), Mrs Davies (Deputy Chair), Mr George, Mr Parker, Ms Tebbutt

### **Officers in Attendance**

Jason Arditi, Vicki Buchbach, Jacqueline Isles

### **1. Confirmation of Minutes**

Resolved, on the motion of Mr Parker:

That the minutes of the meeting held on 1 February 2012 be confirmed.

### **2. \*\*\*\***

### **3: Inquiry into Management of Domestic Wastewater**

- i. Outstanding submission- Submission No 30, Department of Premier and Cabinet

Resolved, on the motion of Mr Parker:

That the Committee receives and authorises the publication of the remaining submission to this Inquiry, and orders that it be placed on the Parliament's website.

- ii. Discussion of potential witnesses to hearing of 22 March 2012

Members agreed to invite the ten submitters to give evidence at the public hearing as follows:

University of Newcastle  
Camden Council  
Eurobodalla Shire Council  
Penrith Shire Council  
NSW Farmers' Association  
Lismore City Council  
Whitehead & Associates Environmental Consultants Pty Ltd  
Yass Valley Council  
Septic Tank Action Group  
NSW Department of Premier and Cabinet

Members agreed to invite, in addition, one council from those identified by the NSW Farmers' Association in its submission as a best practice example.

iii. Discussion of possible site visits and appropriate dates

Resolved on the motion of Mr Parker:

That the Committee defer discussion of possible site visits and appropriate dates until after the public hearing.

The committee adjourned at 1.54 pm until Thursday 22 March 2012 or an earlier date if required.

## **MINUTES OF PROCEEDINGS OF THE COMMITTEE ON ENVIRONMENT AND REGULATION (NO. 8)**

Thursday, 22 March 2012 at 9.11 a.m.  
The Macquarie Room, Parliament House

### **Members Present**

Mr Patterson (Chair), Mrs Davies (Deputy Chair), Mr George, Mr Parker and Ms Tebbutt

### **Officers in Attendance**

Jason Arditi, Mieke Bowyer, Vicki Buchbach and Jacqueline Isles.

### **1. Confirmation of Minutes**

Resolved, on the motion of Mr Parker, seconded by Mrs Davies:  
That the minutes of the meeting held on 21 February 2012 be confirmed.

2. \*\*\*\*

### **3. Inquiry into the Management of Domestic Wastewater**

i. Allocation of Questions for Public Hearing

The Committee noted the questions prepared by staff.

i. Discussion of possible site visits and appropriate dates

Members agreed to defer discussion of possible site visits and appropriate dates until the next meeting.

### **4. Public Hearing – Inquiry into the Management of Domestic Wastewater**

At 9.20 a.m. the Chair declared the commencement of the public hearing and the witnesses and the public were admitted.

Associate Professor Phillip Geary, School of Environmental and Life Sciences, University of Newcastle, was affirmed and examined. Professor Geary agreed to take further questions on notice.

Evidence concluded, the witness withdrew.

Mr Justin Crosby, Policy Director NSW Farmers' Association; Mr Brett Guthrey, Horticulture Farmer, NSW Farmers' Association and Mr Kevin McAsh, Chairman, Oyster Farmers

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Committee, NSW Farmers' Association, were sworn and examined. The witnesses agreed to answer additional questions on notice.

Evidence concluded, the witnesses withdrew.

Mr Joe Whitehead, Director, Whitehead & Associates Environmental Consultants Pty Ltd, was sworn and examined. Mr Whitehead agreed to answer additional questions on notice.

Evidence concluded, the witness withdrew.

Mr Malcolm Hunter, Chair, Septic Tank Action Group, was affirmed and examined and Mr John Roseland, Senior Health & Building Surveyor, Wyong Shire Council, Septic Tank Action Group, was sworn and examined. The witnesses agreed to answer additional questions on notice.

Evidence concluded, the witnesses withdrew.

The Committee adjourned at 12.24 p.m. until 1.20 p.m.

Ms Deborah Lenson, Divisional Manager, Environmental Services, Eurobodalla Shire Council, was sworn and examined.

Ms Rebecca Hardwick, Environmental Health Officer, Eurobodalla Shire Council, was affirmed and examined.

Ms Lenson tendered a document titled: "Additional Submission - Summaries of Additional Issues to be included in the Submission of Eurobodalla Shire Council".

Resolved, on the motion of Mr Parker, seconded by Mrs Davies:

That the additional submission be attached to the evidence of the witness to form part of the evidence.

Ms Hardwick tendered a document titled: "Code of Practice - On Site Sewage Management - Eurobodalla Shire Council".

Resolved, on the motion of Ms Tebbutt, seconded by Mr Parker:

That the Code of Practice be attached to the evidence of the witness to form part of the evidence. The witnesses agreed to answer additional questions on notice.

Evidence concluded, the witnesses withdrew.

Before the commencement of evidence by the next witnesses, the Chair declared an interest in Camden Council and Mrs Davies also declared an interest in Penrith Council.

Mr Anthony Price, Environmental Health Coordinator, Penrith City Council, was affirmed and examined and

Ms Jayne Louise Christie, Environmental Health Officer, Camden Council, and Ms Fiona Stalgis, Team Leader for Environment and Health Branch, Camden Council, were sworn and examined.

Ms Stalgis tendered two copies of a folder of photographs titled: "Failing On-site Sewage Management Systems on Market Gardens".

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Resolved, on the motion of Mrs Davies, seconded by Ms Tebbutt.

That the folder of photographs titled "Failing On-site Sewage Management Systems on Market Gardens" be attached to the evidence of the witness to form part of the evidence. The witnesses agreed to answer additional questions on notice.

Evidence concluded, the witnesses withdrew.

Mr Anthony Paul Zammit, Manager, NSW Shellfish Program, NSW Food Authority, and Mr Robert Ian Mitchell, Principal Project Officer, Water and Sewerage, Office of Water, were sworn and examined and

Dr Robert Joseph Banens, Environmental Engineer, Team Leader, Assessments, Sydney Catchment Authority, and Mr Timothy Mark Gippel, Senior Policy Officer, Fishing and Aquaculture, Department of Primary Industries, were affirmed and examined:

Dr Banens tendered two copies of a document titled: "Designing and Installing On-Site Wastewater Systems - A Sydney Catchment Authority Current Recommended Practice".

Resolved, on the motion of Mr Parker, seconded by Ms Tebbutt:

That the documents titled "Designing and Installing On-Site Wastewater Systems - A Sydney Catchment Authority Current Recommended Practice" be attached to the evidence of the witness to form part of the evidence.

Dr Banens tendered a document of the Sydney Catchment Authority titled: "Developments in Sydney's Drinking Water Catchment—Water Quality Information Requirements".

Resolved, on the motion of Mr Parker, seconded by Ms Tebbutt:

That the document of the Sydney Catchment Authority titled: "Developments in Sydney's Drinking Water Catchment—Water Quality Information Requirements" be attached to the evidence of the witness to form part of the evidence. The witnesses agreed to answer additional questions on notice.

Evidence concluded, the witnesses withdrew.

Mr Vaughan MacDonald, Leader Development, Division of Local Government, Department of Premier and Cabinet, was sworn and examined, and

Ms Alison White, Director, Metropolitan Water Directorate, Department of Finance and Services, was affirmed and examined. The witnesses agreed to answer additional questions on notice.

Evidence concluded, the witnesses withdrew.

Resolved on the motion of Mrs Davies, seconded by Mr George:

That the Committee publish the transcript of the witnesses' evidence on the Committee's website, after making corrections for recording inaccuracy, together with the answers to any questions taken on notice in the course of today's hearing.

The committee adjourned at 3.52 p.m.

## MINUTES OF PROCEEDINGS OF THE COMMITTEE ON ENVIRONMENT AND REGULATION (NO. 9)

9.30am, Wednesday 12 September 2012  
Room 1254, Parliament House

### Members Present

Mr Patterson (Chair), Mrs Davies (Deputy Chair), Mr George, Mr Parker

### Apologies

An apology was received from Ms Tebbutt

*Staff in attendance:* Jason Ardit, Rachel Simpson, Jenny Whight

The Chair commenced the meeting at 9.33am.

### 5. Confirmation of Minutes

Resolved, on the motion of Mr Parker:

That the minutes of the meeting held on 22 March 2012 be confirmed.

### 6. Inquiry into the Management of Domestic Wastewater

#### (a) *Submissions received*

The Committee noted the receipt of the following submissions:

- Peak Oyster Advisory Group
- Mr Patrick Garry

Resolved, on the motion of Mr Parker:

That the Committee authorise the publication of the submissions from the Peak Oyster Advisory Group and Mr Patrick Garry, and orders that they be placed on the Parliament's website.

#### (b) *Draft report*

The Chair opened discussion on the draft report on the management of domestic wastewater. The Committee heard from Committee staff on the current content of the draft report. Discussion ensued.

The Committee deliberated on what further material should be included in the draft report.

The committee adjourned at 9.59am, until a date and time to be determined.

## MINUTES OF PROCEEDINGS OF THE COMMITTEE ON ENVIRONMENT AND REGULATION (NO. 10)

4.00pm, Wednesday 14 November 2012  
Room 1153, Parliament House

### Members Present

Mr Patterson (Chair), Mrs Davies (Deputy Chair), Mr Parker, Ms Tebbutt

## Apologies

An apology was received from Mr George

*Staff in attendance:* Jason Ardit, Rachel Simpson, Jenny Whight

The Chair commenced the meeting at 4.15pm.

## 7. Confirmation of Minutes

Resolved, on the motion of Mr Parker, seconded Mrs Davies:  
That the minutes of the meeting held on 12 September 2012 be confirmed.

## 8. Inquiry into the Regulation of Domestic Wastewater

### Consideration of the Chair's Draft Report

Resolved, on the motion of Mr Parker:  
That the Committee consider the draft report in globo.

Resolved, on the motion of Mr Parker:  
That a new recommendation be inserted after recommendation 5:  
"The Committee recommends that an expert panel considers whether councils and any service provider has a duty to report to the Food Authority where it becomes aware that a food crop has or has potentially become contaminated."

Resolved, on the motion of Mrs Davies:  
That recommendation 7 be amended by deleting the words "an expert" and inserting instead "a" and that the words "technical and or professional experts," be inserted after the words "panel made up of".

Resolved, on the motion of Ms Tebbutt:  
That recommendation 13 be amended by inserting the words "This should include the means by which councils can issue an infringement notice to the manufacturers and/or installers for faulty manufacturing and/or installation, for an appropriate, specified time." after the word "audits."

Resolved, on the motion of Mr Parker:  
That recommendation 14 be amended by inserting the words "and template" after the word "standard".

Resolved, on the motion of Mr Parker:  
That recommendation 15 be amended by deleting the words "constituted by" inserting instead "comprised of".

Resolved, on the motion of Mr Parker:  
That recommendation 18 be amended by deleting the words "considers reviving" and inserting instead "revives".

Resolved, on the motion of Mr Parker:

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That the draft report, as amended, be the report of the Committee and that it be signed by the Chair and presented to the House.

Resolved, on the motion of Mr Parker:

That the Chair and committee staff be permitted to correct stylistic, typographical and grammatical errors.

Resolved, on the motion of Mr Parker:

That once tabled, the Report be placed on the Committee's website.

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The committee adjourned at 5.05pm, until a date and time to be determined.