

AUSTRALIAN VETERINARY EMERGENCY PLAN

AUSVETPLAN

1996

Management Manual

Laboratory preparedness

AUSVETPLAN is a series of technical response plans that describe the proposed Australian approach to an exotic animal disease incursion. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency-management plans.

Agriculture and Resource Management Council of Australia and New Zealand

This Management Manual forms part of:

AUSVETPLAN Edition 2.0, 1996

[AUSVETPLAN Edition 1.0, was published in 1991]

This document will be reviewed regularly. Suggestions and recommendations for amendments should be forwarded to the AUSVETPLAN Coordinator (see Preface).

Record of amendments to this manual:

There are occasional minor differences in the page breaks between the paper and this electronic version which we can unfortunately not avoid.

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PREFACE

This **Management Manual for laboratory preparedness** is an integral part of the **Australian Veterinary Emergency Plan**, or AUSVETPLAN (Edition 2.0). AUSVETPLAN structures and functions are described in the **Summary Document**.

This manual sets out the disease control procedures which were approved in February 1991 by the then Australian Agricultural Council, out-of-session at meeting 135, for use in an animal health emergency in Australia. It has been upgraded and approved by the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) out-of-session in January 1996.

The purpose of this manual is to assist veterinary laboratories prepare a contingency plan for an exotic disease emergency. 'Laboratories' include the following establishments that examine diagnostic specimens from animals:

- State, Commonwealth and university veterinary laboratories;
- private veterinary laboratories; and
- other facilities, eg medical laboratories that receive veterinary diagnostic specimens, laboratory facilities in private veterinary practices.

The Australian Animal Health Laboratory (AAHL) already has comprehensive operating procedures that ensure maximum microbiological security, consistent with the principles outlined in this document.

Detailed instructions for field implementation of the strategies are contained in the AUSVETPLAN **Operational Procedures Manuals** and other **Management Manuals**. Cross-references to strategies, manuals and other AUSVETPLAN documents are expressed in the form:

Document Name, Section no.

For example, **Decontamination Manual, Section 3**.

The manual will be reviewed regularly. Suggestions and recommendations for amendments should be forwarded to:

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1 INTRODUCTION

AUSVETPLAN aims to provide scientific information and coherent plans for managing an exotic animal disease emergency. Laboratories that receive diagnostic specimens from animals may be involved in such an emergency. It is essential that each laboratory has an exotic disease contingency plan.

AUSVETPLAN provides the scientific, logistic and managerial resources necessary for both the preparation for and operation of an exotic animal disease emergency.

This manual on *laboratory preparedness* reviews the issues that each laboratory must address in preparing an appropriate contingency plan.

1.1 Responsibilities of laboratories

1.1.1 Notification

Any suspected exotic disease or unusual disease incident must be reported to the State/Territory chief veterinary officer (CVO) — see appendix 1.

Expertise for initial diagnosis

The laboratory veterinarian (pathologist, microbiologist or parasitologist) will be involved in the initial diagnosis of an exotic disease, either in the course of routine examination of specimens submitted to the laboratory or as part of a diagnostic team in the field.

1.1.2 Activation of the laboratory contingency plan

Activation of the laboratory contingency plan occurs immediately specimens from a suspected exotic disease are handled at the laboratory. See Appendix 7 for a suggested format of a laboratory contingency plan.

Secure laboratory facilities

Appropriate microbiological security must be provided for specimens from a suspected or confirmed exotic disease, which are examined at that laboratory (ie a single exposure); or during provision of ongoing laboratory services to an exotic disease emergency in the active high-risk phase, or the later, low-risk phase (eg serological monitoring).

Resource staff

Laboratory staff can be involved in an exotic disease emergency either in or outside the laboratory (eg in the field, or in the local disease control centre).

Coordination of laboratory activities

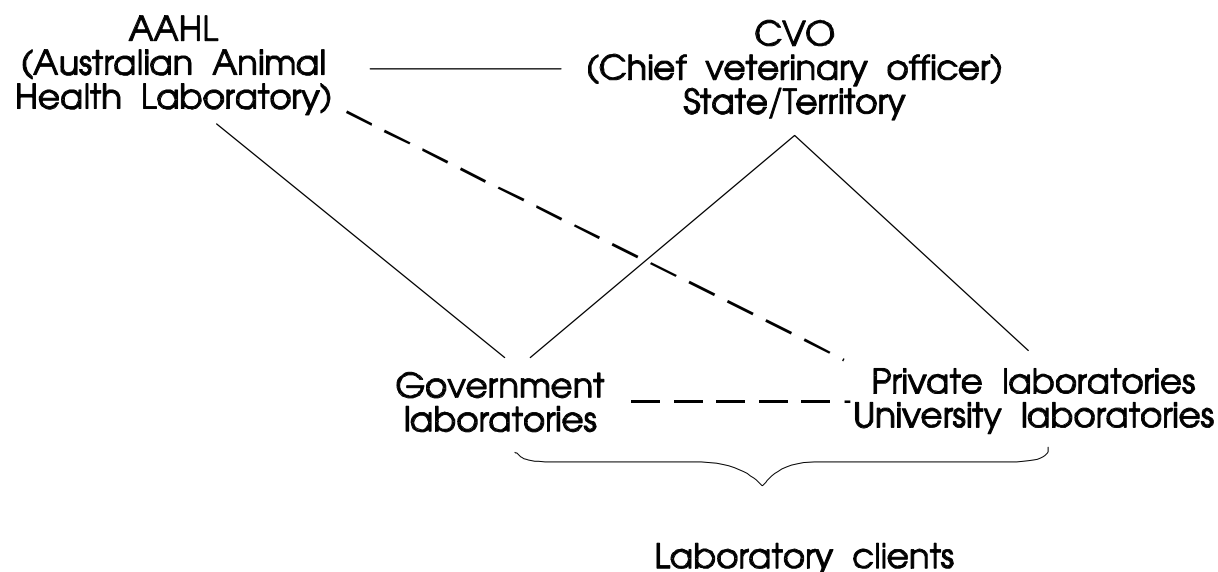
This manual provides guidelines for laboratories involved in an exotic disease emergency. It should be read in conjunction with other documents that outline the responsibilities of Commonwealth and State governments in the event of an exotic disease emergency.

The AUSVETPLAN **Summary Document** is an overview of national planning structure for the management of an exotic disease emergency in Australia. This document should be read to provide the context of laboratory activities.

2 COMMUNICATION

2.1 Normal laboratory operations

Figure 1 shows the lines of communication between the main bodies involved with information and policy matters relevant to veterinary laboratories. Communication is through formal and informal channels.



Key

— = formal lines of communication

--- = informal lines of communication

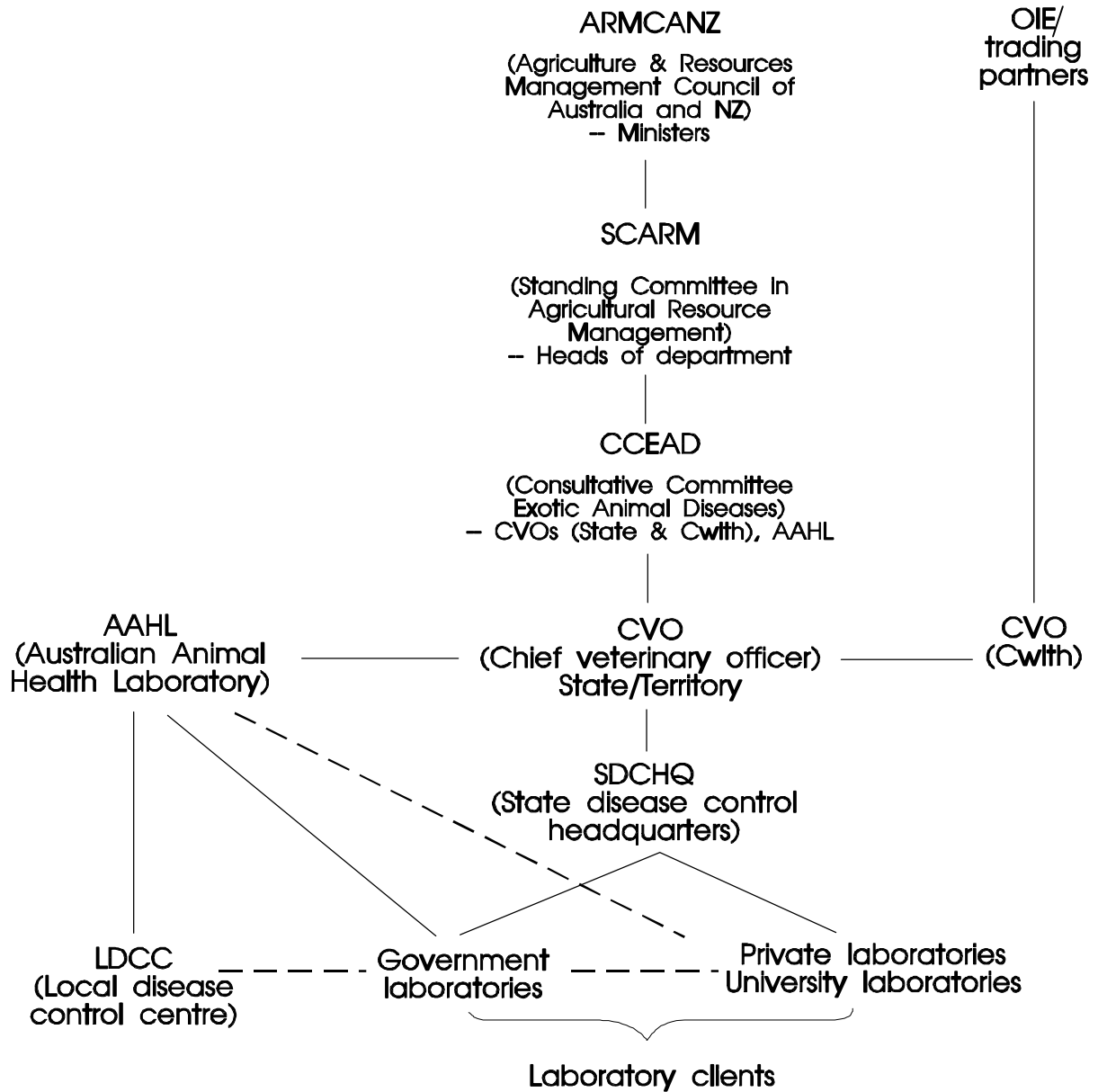
Figure 1 Lines of communication for veterinary laboratories (normal operations)

- There is a strong informal network of communication amongst veterinary laboratories in Australia. This network relies on personal contacts between laboratory staff.
- 'Pathmail' is an effective informal system of computerised communication within the network of veterinary laboratories, using the Internet. 'Pathmail' is coordinated by the Western Australian Department of Agriculture.

See Appendix 1 for addresses and contact telephone and facsimile numbers of CVOs and government veterinary laboratories.

2.2 An exotic disease outbreak

Figure 2 indicates lines of communication, not a formal line management structure. It assumes that private laboratories will not have a direct role in an exotic disease outbreak but will need to be kept informed, so that they can take appropriate measures with their routine specimens:



Key

— = formal lines of communication

--- = informal lines of communication

Figure 2 Lines of communication for veterinary laboratories (exotic disease outbreak)

2.3 Communication with clients

Veterinary laboratories service their local area and many have disease management and research programs that provide a wider State or national service. Their clients range from private or government veterinarians, district field officers, or individual farmers, through to national animal industry bodies. Maintaining lines of communication with clients will be essential during an exotic disease emergency.

2.3.1 Veterinarians

The veterinary laboratories are regional resources to field veterinarians for information and expertise on exotic disease diagnosis. They fulfil this role in various ways:

- informal communication with veterinarians in the course of routine work;
- newsletters to veterinarians;
- liaison through local branches of the Australian Veterinary Association; and
- provision of audiovisual material (slides/videos) and reference material for exotic disease education and training (see Section 4.5).

2.3.2 Livestock industries

Veterinary laboratories communicate directly with livestock industries through:

- industry groups and individual producers by meetings and field days;
- laboratory liaison committees; and
- laboratory open days.

3 TRAINING

3.1 Aim

Training gives laboratory staff general diagnostic experience and specific skills in a range of exotic animal diseases. It also focuses on the practical aspects of implementing the laboratory contingency plan, including microbiological security, cleaning and decontamination and transport of specimens.

3.2 Veterinarians

Veterinary pathologists in diagnostic laboratories are in the front line to monitor changing patterns of disease and to recognise new or exotic diseases, particularly the non-vesicular diseases (eg swine fever, bluetongue, avian influenza). Other laboratory veterinarians (eg microbiologists, parasitologists) may also be the first point of contact for exotic disease specimens. Training in, or personal experience of, the 'standard' exotic diseases gives these veterinarians motivation and confidence to consider a diagnosis of an exotic disease amongst routine diagnostic submissions.

3.2.1 Australian Animal Health Laboratory (AAHL)

AAHL runs regular exotic animal disease courses for veterinarians: courses for field veterinarians which emphasises clinical signs and the differential diagnosis of exotic and endemic diseases; and a course for laboratory veterinarians which provides training in specific laboratory techniques (such as histopathology) for exotic disease diagnosis. There are two courses each year with field veterinarians having more courses than lab veterinarians.

To date, most Commonwealth and the majority of State veterinary personnel have attended one of these courses.

3.2.2 Overseas

Overseas outbreaks of exotic animal disease provide a unique opportunity for Australian veterinarians to gain field experience of exotic animal diseases and to examine the response and management plans of other countries.

The Commonwealth Department of Primary Industries and Energy has training funds that can be allocated to State or Commonwealth veterinarians, or private veterinary specialists, to enable them to travel overseas and report their findings on their return. Veterinarians with overseas training are required to share their experiences with government and private veterinarians attending exotic disease refresher courses.

3.2.3 Other

Other training courses, on microbiological security, spills and decontamination, and IATA, also increase the preparedness of laboratory staff.

3.3 Scientists/technologists

All scientific staff at laboratories require appropriate training to meet their technical responsibilities for exotic disease diagnosis and to fulfil roles specified in the laboratory contingency plan.

3.3.1 Australian Animal Health Laboratory (AAHL)

- Specific laboratory techniques.

3.3.2 Other

- Microbiological security
- Spills and decontamination
- IATA

3.4 Laboratory contingency plan exercises

Training exercises should be carried out annually at the time of annual review of the laboratory contingency plan for exotic disease. These exercises can be:

- ‘desk-top’ paper exercises for senior staff giving training on specific components of the plan; or
- ‘full-scale’ exercises involving all laboratory staff, with groups going into the field and reporting back to base.

3.5 Educational role

Veterinary laboratories are a local resource for information and expertise on the diagnosis of exotic diseases. This is a natural extension of their role with endemic diseases. The routine diagnostic activities of veterinary laboratories provide a tangible basis for promoting an awareness of the risk and dangers of exotic diseases.

To fulfil this role, the laboratory needs:

- *staff with exotic disease expertise*; and
- *accessible resources* on exotic diseases, including reference publications, advisory publications, videos, colour transparencies and histopathology reference sets.

4 MICROBIOLOGICAL SECURITY

4.1 Reference

Microbiological security must be conducted according to the standards set out in Australian/New Zealand Standard 2243.3:1995, *Safety in Laboratories Part 3: Microbiology* (4th edition).

4.2 Standard operating procedures

It is essential that each laboratory has documented *standard procedures* (SP) that ensure microbiological security *during normal operation*. Manuals containing these procedures should be readily accessible to staff at all times. These standard procedures form a sound basis for any special measures required during an exotic disease emergency.

During preparation of the laboratory contingency plan the standard procedures for the following activities should be reviewed.

4.2.1 Laboratory equipment and facilities

Production of aerosols and spread of infectious agents must be minimised during use, routine cleaning and decontamination of:

- biosafety cabinets (use in accordance with Australian Standard)
- centrifuges
- band saws
- sonicators
- stomachers
- pipettes

Clean-up and decontamination of spills, or after accidents must also be carried out to ensure no spread of infectious agents.

There should be routine cleaning and decontamination of benches and postmortem room facilities after use, and routine cleaning and decontamination *at the end of each day*.

An appropriate selection of disinfectants should be made balancing broad-spectrum activity (oxidising agents, aldehydes) against convenience for routine use (alcohols). Disinfectant use on different surfaces (stainless steel, laminates, paintwork, concrete or tiles) should be specified. For further details see Appendix 2 (Recommended methods for chemical disinfection in microbiological laboratories).

4.2.2 Waste handling, sterilisation and disposal

Waste must be handled in accordance with the Australian Standard. High-risk waste must be sterilised on site. Sharps should be collected in designated rigid, puncture-proof containers for disposal.

4.2.3 Safe specimen handling

Procedures for the safe handling of specimens should specify methods for:

- packing and transport from field;
- unpacking and handling in specimen receiving areas of the laboratory; and
- transfer within the laboratory.

4.2.4 Protective clothing

Standard procedures should specify:

- the nature and requirement for use of protective clothing in laboratory areas including the postmortem room;
- the type of equipment required for different classes of agents and level of work being done with such agents; and
- decontamination procedures required before laundering.

4.2.5 Zoonoses

Procedures are required to limit the risk of exposing staff to zoonotic agents, including:

- procedures to limit the aerosol spread of zoonotic agents after spills, or during necropsy examination including:
 - vacating the area for at least 30 minutes after the spill to allow dispersal of aerosols
 - use of respiratory protection equipment;
 - use of face masks;
- provision of eye wash equipment;
- vaccination where appropriate.

4.2.6 Training

Training should include:

- induction training of new staff and visitors in safe operating practices;
- operation of equipment; and
- occupational health and safety issues.

4.2.7 Control of access to and movements within the laboratory

Movements of staff and visitors within the laboratory should be controlled, with procedures for:

- entry and escort of visitors to the laboratory;
- staff restrictions in high-risk areas, eg postmortem room, Physical Contaminant Level 3 facility (see the Australian/New Zealand Standard—Classification of laboratories, practices and procedures).

4.2.8 Animal handling procedures

- inoculation of pathogens/infective materials into animals; and
- postmortem procedures.

5 CLEANING AND DECONTAMINATION

5.1 References

Practical aspects of cleaning and decontamination are detailed in:

- the AUSVETPLAN **Decontamination Manual**; and
- Australian/New Zealand Standard 2243.3:1995, *Safety in Laboratories Part 3: Microbiology* (4th edition).

5.2 Disinfectants

There are six main groups from which to select disinfectants.

- 1) Soaps and detergents:
 - surfactants (anionic, nonionic, cationic)
 - anionic (linear alkyl benzene sulphonates)
 - cationic (quaternary ammonium compounds)
 - detergents containing polyphenolic compounds, chlorinated phenols, eg Stericide®
- 2) Oxidising agents (**broad-spectrum activity**):
 - sodium hypochlorite
 - calcium hypochlorite
 - Virkon®(peroxygen biocide)
- 3) Aldehydes (**broad spectrum activity**):
 - Glutaraldehyde
 - Formalin (formaldehyde solution 40% w/v)
 - Formaldehyde gas
- 4) Alkalis:
 - sodium hydroxide – caustic soda
 - sodium carbonate – soda ash (anhydrous Na_2CO_3)
– washing soda ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$)
- 5) Acids:
 - hydrochloric acid
 - citric acid
- 6) Alcohols:
 - ethyl alcohol 80% v/v (70% w/w)
 - isopropyl alcohol 60–70% v/v

Table 1 lists the viruses of veterinary and zoonotic importance within a disinfectant category (A, B, C or D), taking into account the properties of the viruses and their susceptibility to the main disinfectant groups. More details of these viruses, their disinfectant susceptibility and epidemiological considerations, are contained in the **Decontamination Manual**, and in the **Disease Strategies** for specific diseases. Table 2 summarises the working concentrations of the main disinfectants used for inactivation of viruses.

Table 1 Virus susceptibility to disinfectants

VIRUS FAMILY	DISEASE	DISINFECTANT
Bunyaviridae	Rift Valley fever (RVF), Nairobi sheep disease	CATEGORY A: Lipid-containing virus, large size. Best disinfectants: <ul style="list-style-type: none"> •detergents •oxidising agents <ul style="list-style-type: none"> –hypochlorites –Virkon® •aldehydes <ul style="list-style-type: none"> –glutaraldehyde –formalin –formaldehyde gas •alkalis •acids for RVF
Coronaviridae	Transmissible gastroenteritis	
Flaviviridae	Wesselsbron disease, Japanese encephalitis	
Herpesviridae	Aujeszky's disease, equine herpesvirus 1, duck plague	
Iridoviridae	African swine fever	
Orthomyxoviridae	Virulent avian influenza, equine influenza, swine influenza	
Paramyxoviridae	Newcastle disease, rinderpest, peste des petits ruminants	
Poxviridae	Goat pox, sheep pox, lumpy skin disease	
Retroviridae	Maedi/visna, pulmonary adenomatosis	
Rhabdoviridae	Rabies, infectious haemopoietic necrosis, vesicular stomatitis	
Togaviridae	Equine viral encephalitidies (EEE,WEE,VEE), swine fever, equine viral arteritis, Porcine respiratory & reproductive syndrome	
Caliciviridae	Rabbit calicivirus, San Miguel sea lion virus, vesicular exanthema	CATEGORY B: No lipid in virus, small size Best disinfectants: <ul style="list-style-type: none"> •oxidising agents <ul style="list-style-type: none"> –hypochlorite –Virkon® •aldehydes <ul style="list-style-type: none"> –glutaraldehyde –formalin –formaldehyde gas •alkalis •acids are traditionally used for FMD
Picornaviridae	Duck virus hepatitis, foot-and-mouth disease (FMD), swine vesicular disease	
Birnaviridae	Infectious pancreatic necrosis virus	CATEGORY C: No lipid in virus, intermediate size. Best disinfectants: <ul style="list-style-type: none"> •oxidising agents <ul style="list-style-type: none"> –hypochlorite –Virkon® •aldehydes <ul style="list-style-type: none"> –glutaraldehyde –formalin –formaldehyde gas •alkalis •acids for AHS
Reoviridae	African horse sickness (AHS), bluetongue, epizootic haemorrhagic disease/Ibaraki	

Prions	Scrapie/bovine spongiform encephalopathy transmissible spongiform encephalopathy (TSE) agents	CATEGORY D non-viral special inactivation required (see Appendix 6) Best disinfectants: •oxidising agents –hypochlorite (20 000 ppm available chlorine for 1 hour)
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ppm = parts per million

Table 2 Recommended disinfectants and concentrations for inactivation of viruses

Disinfectant group	Usual form supplied	Working strength		Time of contact	Appropriate applications and virus category
		Usual dilution	Final conc.		
<u>Soaps and detergents:</u>	solids or liquids	as appropriate		10 min	Use for Category A viruses. Thorough cleaning is an integral part of effective decontamination.
<u>Oxidising agents:</u>					
Sodium hypochlorite	conc liquid 10–12% available chlorine	1:5	2–3% (20 000 - 30 000ppm) available chlorine	10–30 min (1 hour for TSEs)	Use for Category A, B and C viruses and TSEs. Effective for most applications, except in the presence of organic material.
Calcium hypochlorite	solid	30 g/litre	2–3% (20 000 - 30 000ppm) available chlorine	10–30 min	Less stable in warm, sunny conditions above 15°C.
Virkon® (peroxygen biocide)	powder	20 g/litre	2% (w/v)	10 min	Excellent disinfectant active against all virus families.
<u>Alkalis:</u>					
Sodium hydroxide –caustic soda	pellets	20 g/litre	2% (w/v)	10 min	Use for Category A, B & C viruses (very effective). Do not use in the presence of aluminium and derived alloys.
Sodium carbonate – soda ash, (anhydrous Na ₂ CO ₃)	powder	40 g/litre	4% (w/v)	10 min	Recommended for use in the presence of high concentrations of organic material.
– washing soda (Na ₂ CO ₃ .10H ₂ O)	crystals	100 g/litre	10% (w/v)	30 min	

Table 2 contd

Disinfectant group	Usual form supplied	Working strength		Time of contact	Appropriate applications and virus category
		Usual dilution	Final conc.		
<u>Acids:</u>					
Hydrochloric acid	concentrated acid (10 M)	1:50	2% v/v	10 min	Use only when better disinfectants not available. Corrosive for many metals and concrete.
Citric acid	powder	2 g/litre	0.2% w/v	30 min	Safe for clothes & body decontamination. Especially useful for FMD virus decontamination.
<u>Aldehydes:</u>					
Glutaraldehyde	concentrated solution	as required	2% w/v	10–30 min	Use for category A, B & C viruses (very effective)
Formalin	formaldehyde solution (40% w/v)	1:12	8% v/v	10–30 min	Disinfectant releases irritating, toxic gas.
Formaldehyde gas	Special generation required			15–24 hours	Toxic gas, recommended only if other methods of decontamination cannot be used.
<u>Alcohols:</u>					
Isopropyl alcohol	liquid		60–70% v/v	10 min	Use for Category A viruses on clean surfaces and human skin.
Ethyl alcohol	liquid		80% v/v (70% w/w)	10 min	

ppm = parts per million; w/v = weight for volume; v/v = volume for volume

5.2 Decontamination procedures

5.2.1 Safety

Human skin

Products effective for decontamination of viruses on the hands and the skin are limited. Virkon® is reported to have low toxicity and to be effective against members of all virus families but it has not been approved for use on skin. Alternatively, citric acid or sodium carbonate may be added to washing water to induce antiviral conditions by lowering or raising the pH as appropriate for the agent to be inactivated.

See the **Decontamination Manual, Section 4.1**.

Fumigation

Formaldehyde gas use should be undertaken *only*:

- when it is impossible to use other procedures; and
- by experienced personnel with appropriate safety equipment — AAHL will supply expertise and possibly, if needed, a fully equipped team.

5.2.2 Personal decontamination

The aim of personal decontamination is to safely remove any contamination of the body or items of clothing. The process minimises the risk of cross contamination so that any person can remove themselves from a contaminated environment with nil/minimal risk of disseminating the infectious agent (see the **Decontamination Manual, Section 4.1**).

5.2.3 Laboratory decontamination

See Appendix 2, Recommended applications for chemical disinfectants in microbiological laboratories; and Table 3, Special considerations when using disinfectants.

Virkon® and glutaraldehyde are the two main disinfectants recommended for decontamination in laboratories during an exotic disease emergency. Virkon® (1%) is effective against most viral families and is the recommended working concentration for general use. However, Virkon® (2%) is a more appropriate concentration for exotic viral agents as some viruses, eg calicivirus, parvovirus require 2% for inactivation.

Chlorine-based oxidising agents eg hypochlorites, are excellent broad-spectrum disinfectants that can be used on floors in laboratories and on walls and floors in the postmortem room. Addition of a non-ionic detergent increases the wettability of hypochlorite solutions.

General laboratory areas

Areas of gross contamination or spills should be covered by disinfectant-soaked paper towels or other adsorbent material, which are then bagged and autoclaved before disposal.

Surfaces of benches, equipment, furniture are swabbed with Virkon® or glutaraldehyde. Virkon®-treated surfaces may be wiped with ethyl alcohol (80% v/v) to remove residue. Glutaraldehyde-treated surfaces are allowed to air dry and are not wiped off.

Do not use hypochlorite-based disinfectants in biological safety cabinets. Hypochlorite is corrosive to stainless steel.

Floors are washed with a detergent disinfectant or swabbed with a broad-spectrum disinfectant such as Virkon® or hypochlorite.

Postmortem room

All effluent must be held for treatment by alkali or acid, as appropriate for the suspected agent. Note that chlorine-based disinfectants are inactivated by organic material.

All surfaces including walls, benches and floors should be thoroughly cleaned with Virkon® or a hypochlorite with non-ionic detergent added.

A final disinfectant rinse of all surfaces with a broad-spectrum disinfectant, eg Virkon®, or hypochlorite, or glutaraldehyde ensures decontamination.

Other areas

See the **Decontamination Manual, Section 4.2** for property decontamination, vehicle and machinery decontamination, and areas of special interest.

Table 3 Special considerations when using disinfectants

DISINFECTANT	HEALTH ASPECTS	ENVIRONMENTAL PROBLEMS AND CONTRA-INDICATIONS
Hypochlorites	Toxic for eyes and skin	Strong bleach. Inhibited by high concentrations of organic matter. Corrosive for many metals.
Virkon®	Reasonable care necessary	
Sodium hydroxide	Caustic for eyes and skin	Avoid contact with strong acids. Cannot be used on aluminium or like alloys.
Sodium carbonate	Mildly caustic for eyes and skin	Avoid use with aluminium and like alloys.
Hydrochloric acid	Toxic for eyes, skin and respiratory passages	Corrosive for many metals and concrete. Avoid contact with strong alkalis.
Glutaraldehyde	Avoid eye and skin contact	Does not corrode metal, nor harm rubber, plastics or the cement mounting of lenses.
Formalin solution	Releases toxic gas; irritating for mucous membranes	
Formaldehyde gas	Very toxic for mucous membranes in concentrations down to 2 ppm	Cannot be used in presence of water, hypochlorites or chlorides. Cannot be released to atmosphere without neutralisation. Corrosive for some metals.
Alcohols	Drying of skin	Swells rubber, hardens plastics and weakens cement mounting of lenses. Due to flammability, use alcohols sparingly in biological safety cabinets and not with equipment likely to produce sparks. Coagulation and precipitation of surface proteins of proteinaceous materials may protect microorganisms present.

ppm = parts per million

6 HANDLING OF SPECIMENS

6.1 References

Laboratory veterinarians and members of the diagnostic team should consult the following manuals to ensure appropriate specimens are collected during an exotic disease emergency and that those specimens are handled correctly after collection.

Collection of diagnostic specimens

- **Exotic Diseases Field Guide** (Geering et al 1995)
- **AUSVETPLAN Disease Strategies** for specific diseases.

Organisation

For the appointment and composition of the diagnostic team and subsequent actions to be taken, including the contents of the exotic disease diagnostic kit, see the **Control Centres Management Manual, Part 1, Section 2.2**.

Packaging and transport

In addition to the information given in this section, further information on packaging and transport of specimens can be found in:

- Appendix 3 — detailed information on the transport of specimens (including AAHL transport containers and labelling procedures)
- Appendix 4 — diagrams of AAHL-approved specimen containers, and labelling requirements
- Appendix 5 — shippers declaration for dangerous goods, specimen advice note (AAHL) and dangerous goods check list (examples of completed forms).

6.2 Submission of specimens to AAHL

Most specimens requiring exotic disease testing in Australia are sent to AAHL. The following information describes the procedures to be followed for submission of samples to AAHL. General information on transport of specimens is given in Appendix 3.

The Animal Health Committee has agreed that all testing for exotic diseases should be done at AAHL, AHC has also agreed that all specimens for overseas testing be forwarded to AAHL for dispatch to an appropriate overseas laboratory. The State/Territory CVO or appropriate State/Territory veterinary laboratory personnel may wish to discuss an appropriate laboratory.

Due to AAHL's responsibility for exotic disease diagnosis, its diagnostic systems must be regularly challenged to maintain fully operational systems. Regular submissions (of specimens to AAHL) provide information about exotic disease freedom and facilitates international movement of livestock.

There are three categories of specimens.

- Category 1 routine submission; no suspicion of exotic diseases, eg specimens for export testing
- Category 2 submission for exotic disease exclusion; remote or low likelihood of exotic disease
- Category 3 submissions for exotic disease diagnosis; moderate or high level of suspicion of exotic disease

6.2.1 Category 1 specimens

These specimens are for routine testing (*when there is no suspicion of exotic disease*), eg export certification. Most are serological tests.

Authorisation to submit Category 1 specimens to AAHL

Category 1 specimens require the submitter to:

- advise the veterinary pathologist at AAHL by phone or fax of the specimen and dispatch details (including the consignment note or airway bill number) and the testing required.

6.2.2 Category 2 specimens

These specimens are for exotic disease exclusion (*when there is a low likelihood of exotic disease*). Category 2 includes routine submissions of brains of animals in quarantine for rabies and scrapie exclusion. In the unlikely event of a positive diagnosis of exotic disease from this category of specimen, the Head of AAHL, will immediately inform the CVO of the source State as well as the CVO of Victoria.

Submission of Category 2 specimens to AAHL is encouraged. AAHL should be seen as a resource to help eliminate, not simply confirm, the diagnosis of an exotic disease.

Authorisation to submit Category 2 specimens to AAHL

Category 2 specimens require the submitter to:

- advise the State/Territory CVO; and
- advise the veterinary pathologist at AAHL as for Category 1 (a preliminary phone call to AAHL may be needed to confirm the range of specimens required).

6.2.3 Category 3 specimens

These specimens are for exotic disease confirmation (*when there is a moderate or high suspicion of exotic disease*). Category 3 specimens will be sent to AAHL from a diagnostic team in the field or from staff at a veterinary laboratory. Approval to transport Category 3 specimens from a property to a veterinary laboratory may be given if the suspected outbreak is very close to the laboratory and the transportation to the laboratory is only for safe storage or to facilitate transfer to AAHL.

Authorisation to submit Category 3 specimens to AAHL

Category 3 specimens arising from an alert phase require the submitter to:

- obtain the approval of the State/Territory CVO
- advise the Head of AAHL and the Victorian CVO by phone or fax of the specimen and dispatch details (including consignment note or airway bill number) to facilitate

passage of the specimens through Essendon or Melbourne airport, collection by AAHL personnel and quick passage to AAHL.

6.3 Collection, packaging and transport of specimens to AAHL

6.3.1 Exotic disease diagnostic kit

Each laboratory should maintain an *exotic disease diagnostic kit* which includes a supply of AAHL *specimen transport containers* (see Appendix 4) for use by the diagnostic team to collect specimens in the field. Only very small containers of fresh material are submitted to AAHL for virus isolation. The maximum amount of fresh material that can be transported as ‘infectious goods’ in the AAHL white specimen container is only **50 gm** or **50 mL** (eg 10 x 5 mL containers).

The simple components of the diagnostic kit for specimen collection are:

Specimen containers

5 mL or 10 mL plastic containers with lids, for fresh tissue samples.

Equipment

- Probangs for suspected vesicular disease
- 10% buffered formalin and containers
- Chiller bricks
- Scissors, scalpel blades, knives for specimen collection
- Plastic bags
- Disinfectant, brush, bucket
- Change of overalls, boots

The small containers of appropriate fresh specimens may be decontaminated and placed in clean plastic bags for packing into the transport container under more optimal conditions of microbiological security. The final stages of packaging including completion of paperwork should occur *off the infected premises*.

6.3.2 Packaging of specimens

Specimens to AAHL are classified in one of two ways for packing and transportation. AAHL now supplies two IATA-approved transport containers for these specimens, the GREEN or WHITE BOX, as follows:

1) Diagnostic (non-infectious) substances

- IATA Packing Instruction 650
- Relatively low probability of infectious substances present, or known not to contain infectious substances

Use the GREEN BOX (diagnostic [non-infectious] substances). This box does not have metal shielding plates and is labelled ‘*Biological Products or Diagnostic Specimens — Not Restricted. Packed in compliance with IATA packing instruction 650*’

2) Infectious substances

- IATA Packing Instruction 602
- Known or reasonably believed to contain infectious substances

Infectious substances are further classified according to whether they affect animals only or have zoonotic potential and this is denoted by a *UN Number* (2814 or 2900, respectively, see below).

Use the WHITE BOX (infectious substances). This box has metal shielding plates and is labelled:

‘Infectious Substance—in case of damage or leakage immediately notify public health authority’

Contents: *Proper Shipping Name* UN Number: 2814 or 2900

Examples:

Infectious substance affecting animals (classical swine fever) UN 2814

Infectious substance affecting humans (rabies) UN 2900

The WHITE BOX is packed in accordance with IATA Packing Instruction 602 and must be accompanied by a Shippers' Declaration for Dangerous Goods (see Appendix 5).

For specimens of an infectious nature that are too large for the inner 250 mL container of the WHITE BOX, eg a head for rabies examination, packaging must satisfy:

- **the principle of a primary and secondary container separated by absorbent material sufficient to absorb any fluid released if the primary container leaks; and**
- **the appropriate IATA standard — AAHL has developed a third, larger specimen transport container, with a four-litre tin as its primary container, which meets the IATA standard (see Appendix 4; Figures 5 and 6).**

See Appendix 3 for further information on packaging and Appendix 4 for diagrams of AAHL containers.

Selection of transport container

Category 1 specimens

Use an approved non-infectious goods container, eg the GREEN AAHL specimen transport container, packaged according to the IATA Packing Instruction 650 (non-infectious substance).

Category 2 specimens

It is up to the submitter's judgment whether the Category 2 submission is classified as:

- ‘diagnostic with little likelihood of containing infectious agents’
 - use GREEN AAHL specimen transport container packaged according to IATA Packing Instruction 650 (non-infectious substance); OR
- ‘diagnostic with high likelihood of containing infectious agents’
 - use WHITE AAHL specimen transport container packaged according to IATA Packing Instruction 602 (infectious substance).

Category 3 specimens

For all Category 3 specimens, use the WHITE AAHL specimen transport container packaged according to IATA Packing Instruction 602 (infectious substance).

6.3.3 Documentation and labelling

AAHL specimen advice note

A blank specimen advice note is included with each AAHL specimen transport container.

- Complete the AAHL specimen advice note during the final stage of packaging *off the infected premises*.
- Place the completed note in a plastic bag inside the outer transport container (box), under the lid.

Documentation and labelling of outer specimen transport containers must take place *off the infected premises*. The transport of infectious material by air or through the post is subject to IATA or Australia Post regulations. The WHITE AAHL specimen transport container satisfies these regulations provided the required documentation (Shippers' Declaration for Dangerous Goods) and labelling of the outer transport container are completed correctly.

See Appendix 5 for an example of completed AAHL specimen advice note.

Shippers declaration for dangerous goods

A Shippers Declaration for Dangerous Goods (DG) form is required for 'infectious substances', packed according to IATA Packing Instruction 602 and shipped in the WHITE AAHL specimen transport container. Two copies of the DG form must be completed and placed in the plastic envelope on the top of the box used for shipping documents, for transport by air or post.

The '**Proper Shipping Name**' (with disease known or suspected in parentheses) and **UN Number** will be:

- Infectious substances affecting animals (classical swine fever) UN 2814; OR
- Infectious substances affecting humans (rabies) UN 2900.

The animal diseases with zoonotic potential, eg rabies, Newcastle disease, Rift Valley fever and vesicular stomatitis, must be identified as 'Infectious substance affecting humans (name of disease) UN 2814'.

These forms must be signed by a person of responsibility, familiar with the IATA regulations governing dispatch of dangerous substances.

See Appendix 5 for an example of a completed Shippers Declaration for Dangerous Goods.

Label on outer transport container

On both WHITE AND GREEN BOXES, complete:

- address details (Head of Laboratory, AAHL, address contact person, telephone, fax).
- sender details (name, address, telephone, fax).

On WHITE BOX only, also complete the **Proper Shipping Name and UN Number (2814 or 2900)**. See Appendix 4 (Figure 7) for examples of completed labelling of the outer transport container (WHITE or GREEN BOX).

APPENDIX 1 Addresses of chief veterinary officers (CVOs) and government veterinary laboratories in Australia

(Updated 23.10. 95)

AUSTRALIAN CAPITAL TERRITORY

CVO

ACT Veterinary Officer

ACT Veterinary Services Telephone (06) 207 2357

PO Box 7097 Facsimile (06) 207 2361

CANBERRA MAIL CENTRE ACT 2610

Commonwealth laboratory

Chief

CSIRO

Division of Entomology

GPO Box 1700 Telephone (06) 246 4001

CANBERRA ACT 2601 Facsimile (06) 247 4000

NORTHERN TERRITORY

CVO

Chief Veterinary Officer

Department of Primary Industry and Fisheries

GPO Box 990 Telephone (089) 89 2131

DARWIN NT 0801 Facsimile (089) 89 2089

Territory laboratory

Officer-in-Charge

Berrimah Agricultural Research Centre

PO Box 79

BERRIMAH Telephone (089) 99 2249

DARWIN NT 0828 Facsimile (089) 99 2024

NEW SOUTH WALES

CVO

Chief Veterinary Officer

Division of Animal Industries, NSW Agriculture

Locked Bag 21 Telephone (063) 91 3717

ORANGE NSW 2800 Facsimile (063) 61 9976

State laboratories

Director

Elizabeth MacArthur Agricultural Institute

NSW Agriculture

Woodbridge Road

MENANGLE NSW 2568

Private Mailbag 8 Telephone (046) 29 3333

CAMDEN NSW 2570 Facsimile (046) 29 3300

Officer-in-Charge
 Regional Veterinary Laboratory
 Elizabeth MacArthur Agricultural Institute
 NSW Agriculture
 MENANGLE NSW 2568
 Private Mailbag 8 Telephone (046) 29 3324
 CAMDEN NSW 2570 Facsimile (046) 29 3400

Officer-in-Charge
 Regional Veterinary Laboratory
 NSW Agriculture
 Private Mailbag
 University of New England Telephone (067) 70 1800
 ARMIDALE NSW 2351 Facsimile (067) 70 1830

Officer-in-Charge
 Regional Veterinary Laboratory
 NSW Agriculture
 Private Mailbag Telephone (069) 38 1920
 WAGGA WAGGA NSW 2650 Facsimile (069) 33 1263

Officer-in-Charge
 Regional Veterinary Laboratory
 Wollongbar Agricultural Institute
 NSW Agriculture Telephone (066) 261 261
 WOLLONGBAR NSW 2477 Facsimile (066) 261 276

Officer-in-Charge
 Regional Veterinary Laboratory
 NSW Agriculture
 Agricultural Research and Veterinary Centre
 Forest Road Telephone (063) 91 3858
 ORANGE NSW 2800 Facsimile (063) 91 3899

QUEENSLAND

CVO

Director
 Animal Health Bureau, Department of Primary Industries
 GPO Box 46 Telephone (07) 239 3546
 BRISBANE QLD 4001 Facsimile (07) 239 3558

State laboratories

Manager
 Yeerongpilly Veterinary Laboratory
 Animal Research Institute
 Locked Mail Bag No 4
 MOOROOKA QLD 4105
 (665 Fairfield Road, Telephone (07) 3362 9471
 YEERONGPILLY 4105) Facsimile (07) 3892 9440

Manager

Rockhampton Veterinary Laboratory
Cnr Bruce Highway & Yeppoon Road
PO Box 6014

ROCKHAMPTON MAIL CENTRE Telephone (079) 36 0203
QLD 4702 Facsimile (079) 36 1753

Manager

Toowoomba Veterinary Laboratory
203 Tor Street

PO Box 102 Telephone (076) 314 350
TOOWOOMBA QLD 4350 OIC (076) 314 352
Facsimile (076) 33 1918

Manager

Oonoomba Veterinary Laboratory
PO Box 1085

TOWNSVILLE QLD 4810 Telephone (077) 22 2624
Facsimile (077) 78 4307

Commonwealth laboratory

Chief

CSIRO

Division of Tropical Animal Production

Long Pocket Laboratories

Private Bag 3 Telephone (07) 321 42700
INDOOROOPILLY QLD 4068 Facsimile (07) 321 42881

SOUTH AUSTRALIA**CVO**

Chief Veterinary Officer

Department of Primary Industries

GPO Box 1671 Telephone (08) 207 7970
ADELAIDE SA 5000 Facsimile (08) 207 7852

State laboratory

Manager

VETLAB

GPO Box 1671 Telephone (08) 207 7900
ADELAIDE SA 5000 Facsimile (08) 207 7909

TASMANIA**CVO**

Chief Veterinary Officer

Department of Primary Industry & Fisheries

GPO Box 192 B Telephone (002) 33 3004
HOBART TAS 7001 Facsimile (002) 34 9687

State laboratory

Manager

Tasmania Animal & Water Quality, Diagnostic Services (TAWQDS)

Department of Primary Industry and Fisheries

Mt Pleasant Laboratories

PO Box 46 Telephone (003) 36 5215
KINGS MEADOWS TAS 7249 Facsimile (003) 36 5374

VICTORIA**CVO**

Chief Veterinary Officer

Agriculture Victoria

PO Box 500

Telephone (03) 9651 7137

EAST MELBOURNE VIC 3002 Facsimile (03) 9651 7005

State laboratory

Director

Victorian Institute of Animal Science

Agriculture Victoria

475-485 Mickleham Road

Telephone (03) 9217 4200

ATTWOOD VIC 3049

Facsimile (03) 9217 4299

Commonwealth laboratories

Officer-in-Charge

Animal Health Research Laboratory

CSIRO

Private Mail Bag No 1

Telephone (03) 9342 9700

PARKVILLE VIC 3052

Facsimile (03) 9347 4042

Head of Laboratory

Australian Animal Health Laboratory (AAHL)

CSIRO

PO Bag 24

Telephone (052) 27 5000

EAST GEELONG VIC 3220

Facsimile (052) 27 5555

WESTERN AUSTRALIA**CVO**

Chief Veterinary Officer

Division of Animal Industries

Department of Agriculture

Telephone (09) 368 3342

Box S1400 GPO

Facsimile (09) 367 6248

PERTH WA 6151

State laboratories

Chief Veterinary Pathologist

Animal Health Laboratories

Department of Agriculture

Telephone (09) 368 3424

Baron-Hay Court

or (09) 368 3351

SOUTH PERTH WA 6151

Facsimile (09) 474 1881

Officer-in-Charge

Albany Regional Veterinary Laboratories

444 Albany Highway

Telephone (098) 42 0500

ALBANY WA 6330

Facsimile (098) 41 2707

District Leader

Bunbury Regional Office

North Boyanup Road

PO Box 1231 WA 6231

Telephone (097) 25 5255

BUNBURY WA 6230

Facsimile (097) 25 4136

APPENDIX 2 Recommended applications for chemical disinfectants in microbiological laboratories

The following table is reprinted with permission from Australian /New Zealand Standard 2243.3:1995 *Safety in Laboratories Part 3: Microbiology* (4th edition) (Table B1 page 72).

Site or equipment	Routine or preferred method of usage	Acceptable alternative
Benches and surfaces (not obviously contaminated)	Alcohols eg 70%w/w (=80%v/v) ethyl or 60–70%v/v isopropyl—swabbed	Clear soluble phenolics ¹
Biological safety cabinet (BSC) work surfaces	Glutaraldehyde ² (with cabinet fan operating)—swabbed	Clear soluble phenolics ¹ after bacteriological work
BSC before servicing or testing	Formaldehyde vapour at 70–90% relative humidity at >or = 21°C for 15 hours	
Centrifuge rotor or sealable bucket after leakage or breakage	Disinfection not the preferred method. Autoclaving at 121°C for 15 min recommended	Glutaraldehyde ² for 10 min or clear soluble phenolics ¹ for bacterial spills for 10 min
Centrifuge bowl after leakage or breakage	Glutaraldehyde ² for 10 min (Swabbed twice within the 10 min period then wiped with water)	Clear soluble phenolics ² for bacterial spills for 10 min
Discard containers (pipette jars)	Chlorine disinfection at 2,000–2,500 ppm (0.2–0.25%) freshly prepared and changed daily	Peroxygen biocide at 1% w/v conc (except for <i>Mycobacterium spp.</i>) or clear soluble phenolics ¹ for bacteriological work (changed weekly) or detergent with autoclaving for virus work
Equipment surfaces before services or testing	Surfaces disinfected according to manufacturer's instructions	Alcohol (80% v/v ethyl or 60–70% v/v isopropyl) except when its flammability poses a hazard or glutaraldehyde ² then water
Gnotobiotic animal isolators	Peracetic acid at 2% v/v conc—swabbed	

Hand disinfection	Chlorhexidine (0.5–4% w/v) in alcoholic formulation for 2 min	Isopropyl (60–70% v/v) or ethyl alcohol (80% v/v) with emollients (or Povidone iodine (0.75–1% average iodine) for 2 min
Hygienic handwash	Chlorhexidine (4% w/v) in detergent formulation (or alcoholic formulations) for 15 sec	Detergent cleansers or soap for 15 sec
Spills of blood/serum (or viral cultures)	High concentrated chlorine at 5000–10000 ppm (0.5–1%) for 10 min (active against hepatitis viruses and HIV)	Glutaraldehyde ² or [peroxygen biocide (1% w/v) for 10 min
Spills of bacterial cultures	Clear soluble phenolics ¹ (unaffected by organic load) for 10 min	High concentration chlorine disinfectant or peroxygen biocide or Iodophor ¹ for 10 min

1 Dilute according to manufacturer's instructions

2 Glutaraldehyde as 2% w/v activated aqueous or 1% w/v glycol-complexed formulations

w/v = weight for volume; v/v = volume for volume; w/w = weight for weight

APPENDIX 3 Transport of specimens

Regulations

There are separate regulations for the transport of goods by either road or air. The regulations for land and air transport are very similar. Routinely, the regulations that are usually applied to shipments, regardless of whether they are moved by land or air, are those for transport by air. By complying with the air transport regulations you will be able to send goods by either road or air.

There are 2 sets of regulations that apply to articles and substances, such as pathology specimens, that are shipped by air transport. The regulation sets are:

- ICAO – International Civil Aviation Organisation, a specialised agency of the United Nations. These regulations are the ‘law’ around the world. In Australia, responsibility for these regulations is vested with the Civil Aviation Safety Authority (CASA).
- IATA – International Air Transport Association. These are the regulations adopted by most commercial operators in Australia. The IATA regulations are the basis for the ICAO regulations.

ICAO and IATA regulations differ in their sections affecting shippers of biological substances. To successfully and smoothly ship these substances IATA requirements should be complied with; in doing so the ICAO requirements will also be met.

The shipper is legally responsible for the correct packaging of articles and substances.

Packing instructions

The relevant packing instructions (PI) from the regulations apply to (1) diagnostic substances and (2) infectious substances.

(1) Diagnostic substances (PI 650 in IATA)

Diagnostic substances are referred to in ICAO, but do not have a PI number and are not considered a DG.

A substance is classified by the shipper as diagnostic if there is ‘*relatively low probability of infectious substances present or known not to contain infectious substances*’. Samples sent to a laboratory for an initial screening and are known not to contain infectious substances can be classified as diagnostic.

If substances other than infectious and/or diagnostic substances are included in a package, additional regulations may also apply. Dry ice is a DG when it is present above a specified quantity. Formalin is a DG when the concentration is greater than 10%.

(2) Infectious substances (PI 602 in ICAO & IATA)

A substance is classified by the shipper as infectious if it is ‘*known or reasonably believed to contain infectious substances*’. Samples sent to a laboratory for confirmation of the presence of an infectious agent (eg bacteria, virus) should be classified as infectious.

The infectious classification applies to substances likely to affect animals and/or humans.

Infectious substances are classified as a *Class 6.2 Dangerous Good (DG)*, they have more packaging and paperwork requirements than diagnostic substances.

Packaging

Presently there are few cost-effective packaging systems available 'off the shelf' in Australia other than the special AAHL containers (Figures 3–6). The currently available systems only allow the shipper to send small quantities at a high cost (excluding courier fees).

In the absence of an acceptable packaging system, particularly for diagnostic substances, you should strive to meet the intent of the regulations by using suitable existing containers, eg good quality metal and plastic eskies with leakproof containers inside. *No foam eskies or the like should be used for any external packaging.* A summary of the specific requirements for 650 and 602 PIs is given below.

(1) Diagnostic substances (PI 650 IATA)

The packaging for such substances must include:

- leakproof primary receptacle(s) with a maximum specimen quantity of 100 mL per receptacle;
- absorbent material around the primary receptacle(s) in sufficient quantity to absorb the contents;
- secondary watertight container (maximum of 500 mL specimen);
- chilling (optional) — ice brick between secondary and outer packaging;
- outer packaging of adequate strength for the capacity and weight of the package; can contain more than one secondary container.

The maximum total quantity of diagnostic substances per package is 500 mL regardless of the aircraft type. However, there has been an international recommendation that 4 L or 4 kg be acceptable. At this time carriers are very understanding in respect to quantity and are shipping practical quantities provided the package is well presented by you.

(2) Infectious substances (PI 602 ICAO & IATA)

The packaging for such substances must include :

- inner containers comprising; watertight primary receptacle(s); watertight secondary packaging (maximum of 50 gm or 5 mL specimens for passenger aircraft); absorbent material between the primary and secondary, in quantity sufficient to absorb the entire contents;
- chilling (optional) — ice brick/dry ice between secondary and outer packaging (*NB dry ice is classified as a dangerous good*);
- an outer packaging of adequate strength (eg metal esky) to pass drop test (1200 mm height), spear test (7 kg spear with a 6 mm point dropped from 1000 mm) and pressure test (95 kpa external pressure). The primary receptacle must be intact after these tests! Only one primary/secondary container is allowed per package;
- list of contents must be included between secondary and outer packaging.

The maximum *total* quantity of infectious substances per package is 50 gm or 50 mL for passenger aircraft and 4 kg or 4 L for cargo aircraft. It is the shipper's responsibility to

advise the carrier of the specimen weight in a package. Most carriers have demonstrated a practical and reasonable approach to these quantity limits.

Note: The PIs for each category change if additional DGs such as dry ice are included.

Delivery to the carrier/courier

The relevant documents and labelling must be completed before the consignment is handed to the chosen carrier. The documents and labelling to be completed are:

(1) Diagnostic substances (PI 650 in IATA)

The package must have the consignee and consignor addresses in full. Packaging in accordance with PI 650 is optional, although desirable.

A *consignment note* (carrier supplied) must be completed with the message 'packed in accordance with PI 650'.

(2) Infectious substances (PI 602 in ICAO & IATA)

The package must have:

- Class 6.2 DG diamond affixed to the outside;
- consignee and consignor addresses in full;
- contents and UN approval number;
- name and phone number (24 hours) for person responsible for shipment; and
- packed according to PI 602.

A *consignment note* (carrier supplied) must be completed with the correct declaration and information exactly as given on the package and in the DG form.

A *Shipper's Declaration for Dangerous Goods form* (x2) (white with red stripes around the edges as per attached example) must also be completed. The DG forms are available in pad form from your carrier. It is important that this form is completed correctly otherwise the shipment may be held up somewhere because of a small error on it, eg incorrect UN Number (2814 or 2900). The form can be checked for correctness by faxing it to the carrier who will advise on any changes needed.

The same person must sign both forms.

Labelling

Examples of labels for the outer packages WHITE or GREEN BOXES for AAHL specimen containers are shown in Figure 8.

More information

Most of the carriers/couriers and even the Civil Aviation Safety Authority (CASA) have been very cooperative in assisting shippers of infectious and diagnostic substances. The couriers have accepted most shipments meeting the intent of the regulations. Most local couriers are well equipped and ready to assist.

APPENDIX 4 AAHL containers and labelling

The following diagrams show the AAHL-approved GREEN (PI 650) and WHITE (PI 602) containers, the AAHL large specimen container (specimens up to 4 L) and labelling requirements for the green and white containers.

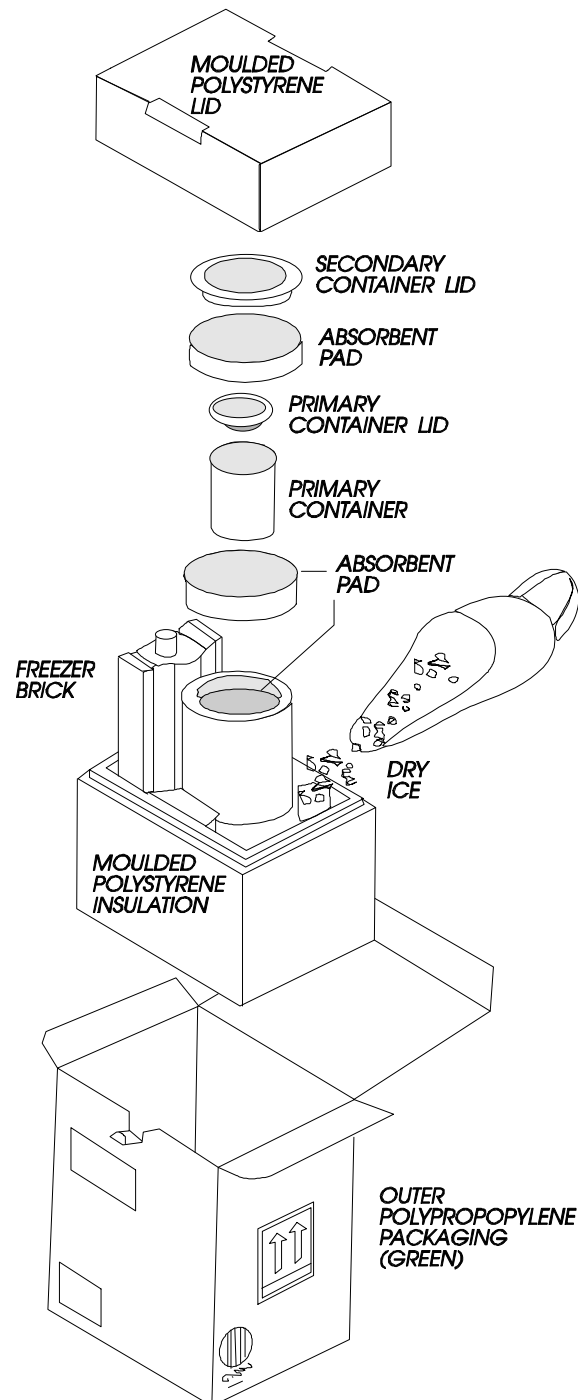


Figure 3 AAHL specimen container, model SC 650 (GREEN BOX) for diagnostic (non-infectious) substances

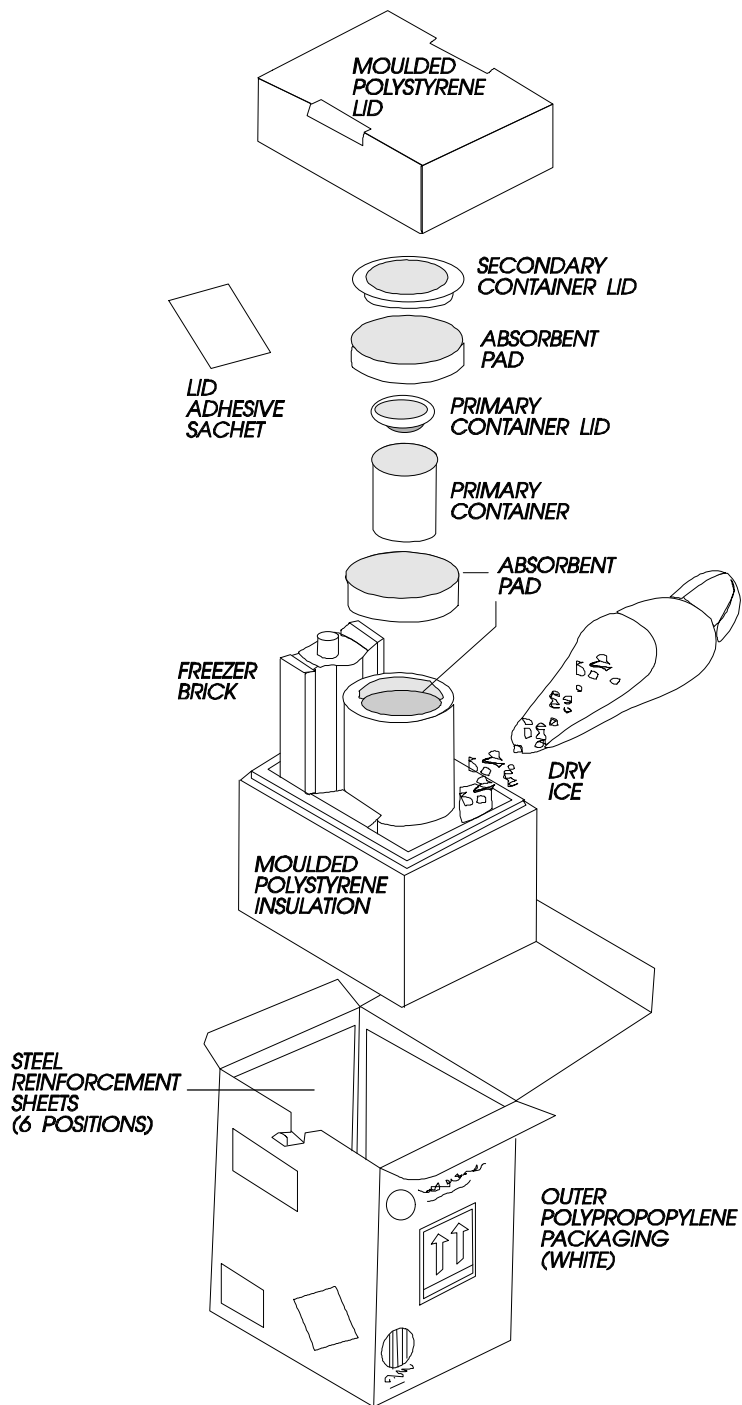


Figure 4 AAHL specimen container, model SC 602 (WHITE BOX) for infectious substances

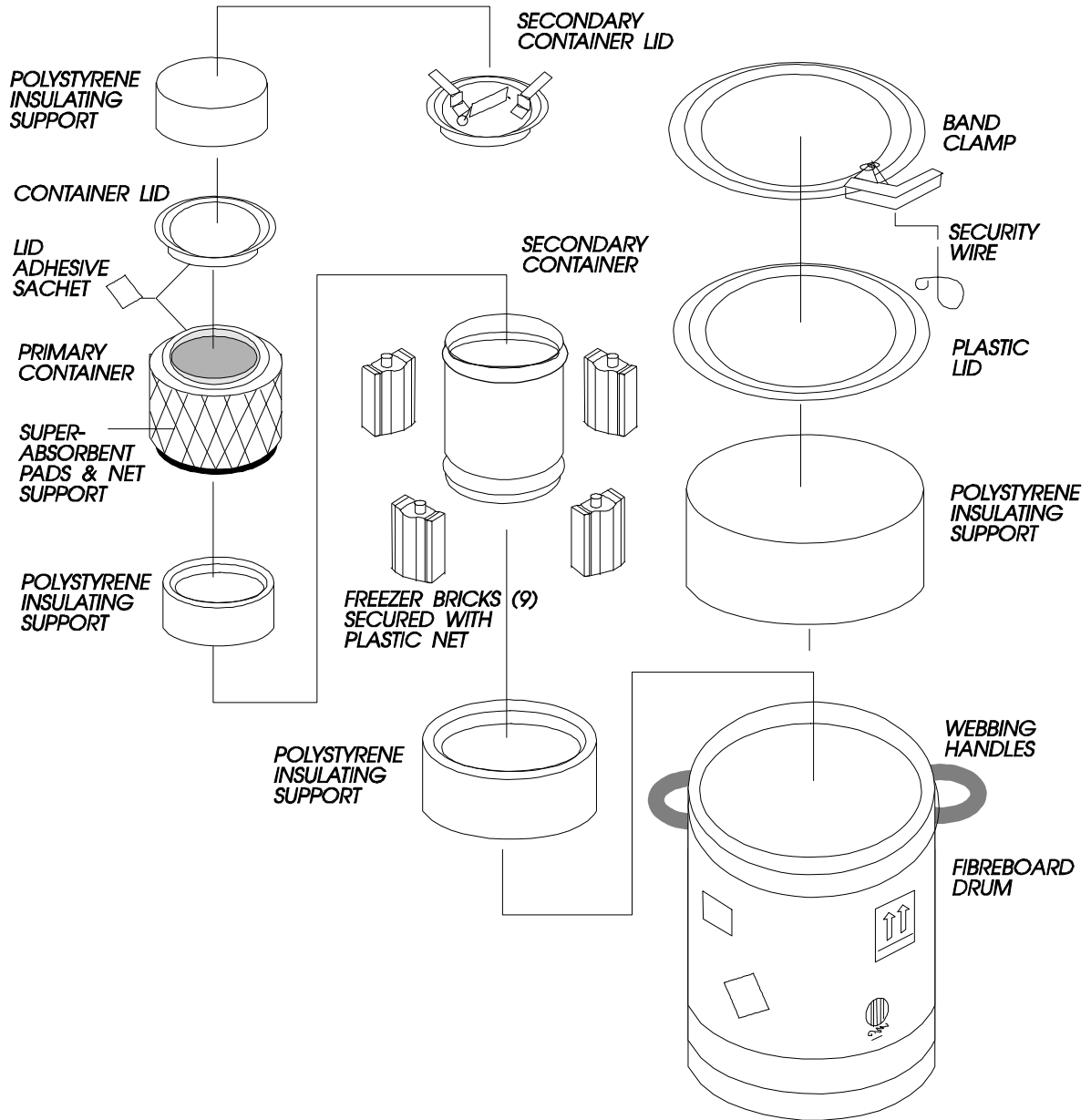


Figure 5 AAHL large specimen container (4 litre capacity) for infectious substances

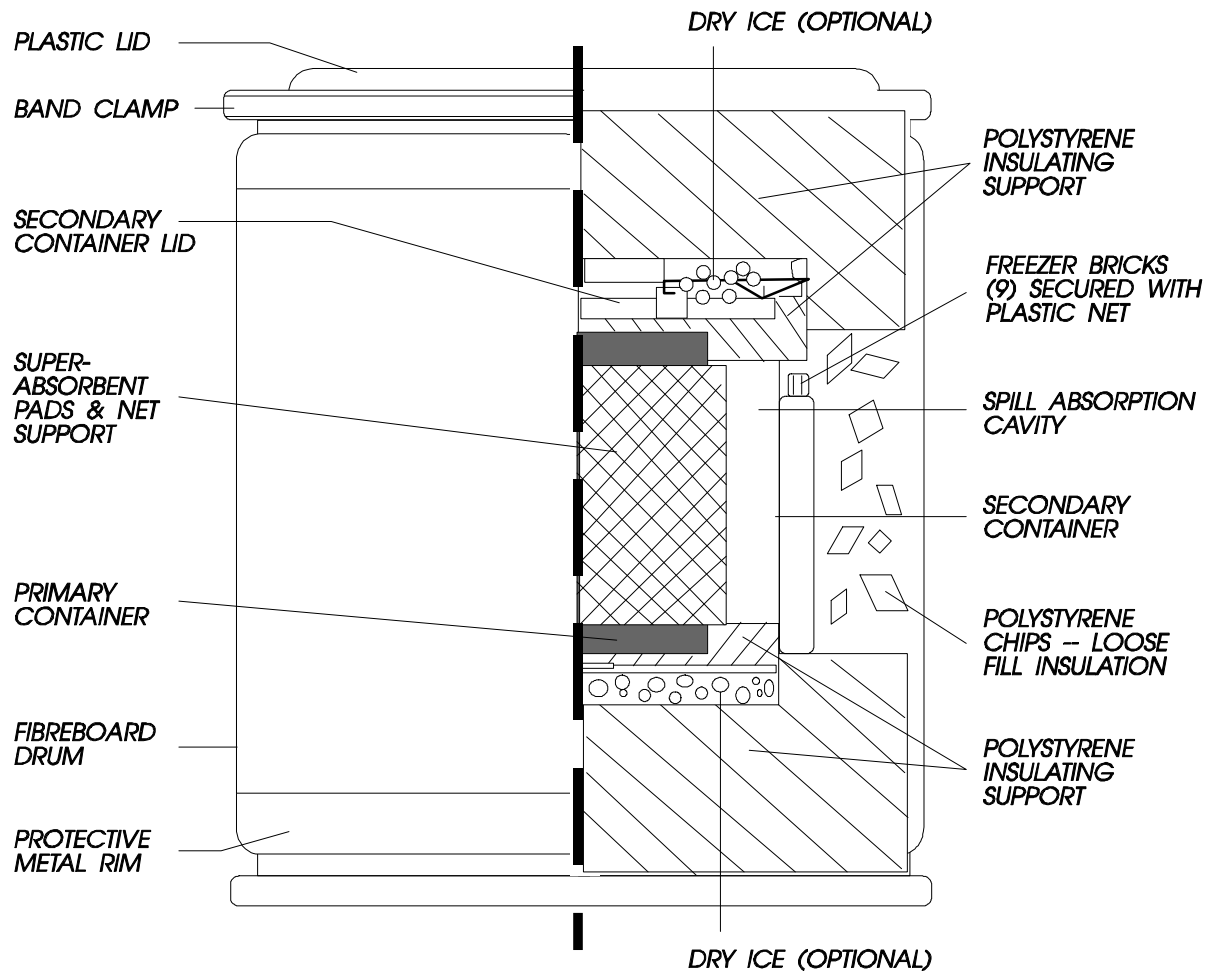


Figure 6 AAHL large specimen container (4 litre capacity) — cross section

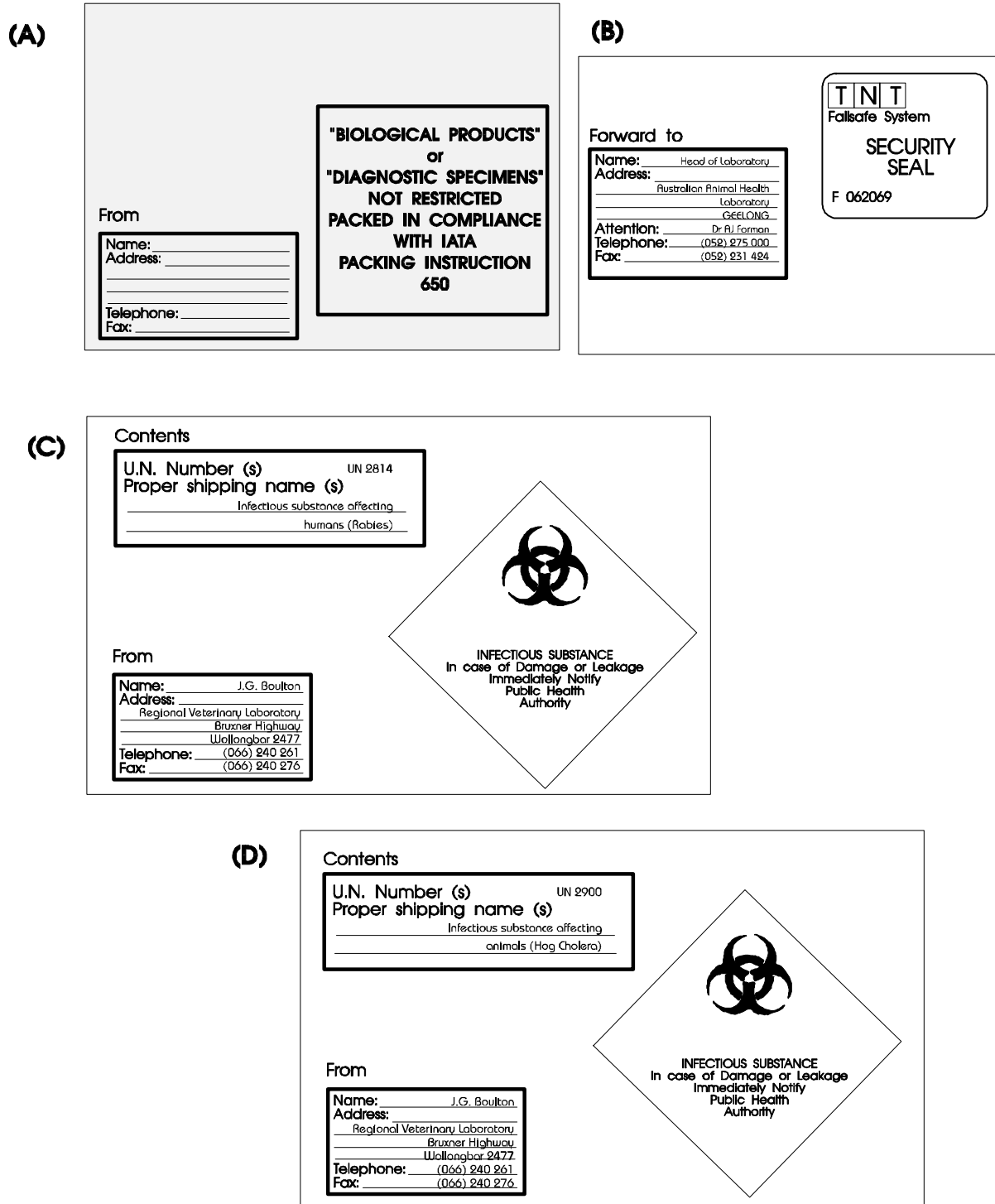


Figure 7 Examples of labels required for transport of AAHL green (A) or white (B, C, D) specimen containers

APPENDIX 5 Documentation

The following forms show examples of:

- completed **AAHL SPECIMEN ADVICE NOTE**
- completed **SHIPPERS DECLARATIONS FOR DANGEROUS GOODS** for two categories of specimens:

1) Infectious Substances Affecting Animals

2) Infectious Substances Affecting Humans

[Animal diseases with zoonotic potential, eg rabies, Newcastle disease, Rift Valley fever and vesicular stomatitis must be sent as *Infectious Substances Affecting Humans*].

- a **DANGEROUS GOODS CHECK LIST** for a commercial carrier.

AAHL specimen advice note

<p>* EXAMPLE ONLY *</p> <div style="background-color: black; color: white; padding: 5px; text-align: center; font-weight: bold; font-size: 1.2em;">SPECIMEN ADVICE NOTE</div>																			
<p>Telephone (052) 275 000 Telex 38923 Fax (052) 275 555</p>	<p>CSIRO Australian Animal Health Laboratory Ryrie Street, Geelong, Victoria</p>	<p>P.O. Bag 24, Geelong, Victoria, 3220</p>																	
<p>Sender's name and address</p> <p style="margin-left: 40px;">JG Boulton Regional Veterinary Laboratory Bruxner Highway WOLLONGBAR NSW 2477</p> <p>Telephone - business (066) 240 261 - after hours (066) 280 732 Telex Fax (066) 240 276</p> <p>Forward account</p> <p>Additional copies of reports to</p>	<p>AAHL accession number (AAHL use only)</p> <table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">-</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> </tr> </table> <p>Sender's reference number</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center;">W</td> <td style="width: 10%; text-align: center;">N</td> <td style="width: 10%; text-align: center;">9</td> <td style="width: 10%; text-align: center;">5</td> <td style="width: 10%;"></td> <td style="width: 10%; text-align: center;">2</td> <td style="width: 10%; text-align: center;">0</td> <td style="width: 10%; text-align: center;">6</td> <td style="width: 10%; text-align: center;">1</td> <td style="width: 10%;"></td> </tr> </table> <p>Species affected PIG Age of animals 6 mo Date specimens collected 28.4.95 Date of despatch to AAHL 28.4.95</p> <p>Owner J Smith</p> <p>Property Location Back Rd KYOGLE NSW</p>				-					W	N	9	5		2	0	6	1	
		-																	
W	N	9	5		2	0	6	1											
<p>Number, identification and type of specimens</p> <p>4 x palatine tonsils (#1-#4) 4 x brain (#1-#4) ----- all samples fresh, chilled</p>																			
<p>Examination requested</p> <p style="font-size: 1.2em; margin-left: 40px;">Classical Swine Fever</p>																			
<p>Clinical signs, PM findings</p> <p>20/100 dead; 40/100 sick: CNS signs diarrhoea erythema</p>																			
<p>Reason for submission/Provisional diagnosis</p> <p style="font-size: 1.2em; margin-left: 40px;">Classical Swine Fever</p>	<p>Signature of sender</p> <p style="text-align: right; font-family: cursive; font-size: 1.5em; margin-left: 100px;">JG Boulton</p>																		

Shippers Declaration For Dangerous Goods

1) INFECTIOUS SUBSTANCES AFFECTING ANIMALS (UN 2900)

*** EXAMPLE ONLY ***

SHIPPER'S DECLARATION FOR DANGEROUS GOODS						
Shipper Officer in Charge Berrimah Agricultural Research Centre PO Box 79 Berrimah DARWIN NT 0828			Air Waybill No. 800 1234 5675 Page 1 of 1 pages Shipper's Reference Number (optional)			
Consignee Head of Laboratory (ATTN: Dr Harvey Westbury) Australian Animal Health Laboratory Ryrie St GEELONG VIC 3220			TNT Air Couriers On time every time			
Two completed and signed copies of this Declaration must be handed to the operator.			WARNING Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.			
This shipment is within the limitations prescribed for (delete non-applicable)		Airport of Departure DARWIN		Shipment type (delete non-applicable) NON - RADIOACTIVE RADIOACTIVE		
<input type="checkbox"/> PASSENGER AND CARGO AIRCRAFT <input type="checkbox"/> CARGO AIRCRAFT ONLY		Airport of Destination MELBOURNE				
NATURE AND QUANTITY OF DANGEROUS GOODS (see sub-Section 8.1 of IATA Dangerous Goods Regulations)						
Dangerous Goods Identification						
Proper Shipping Name	Class or Division	UN or ID No.	Subsidiary Risk	Quantity and type of packing	Packing Inst.	Authorization
INFECTIOUS SUBSTANCES AFFECTING ANIMALS (SWINE FEVER)	6.2	UN 2900		1 POLYPROPYLENE BOX CONTAINING 10 x 5 ml PLASTIC VIALS IN METAL INNER	602	
Additional Handling Information PLEASE REFRIGERATE IF DELAYED IN TRANSIT						
I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labelled, and are in all respects in the proper condition for transport by air according to the applicable IATA Dangerous Goods Regulations, Carrier's conditions and relevant International and National laws or Government Regulations.				Name/Title of Signatory J. SMITH VETERINARY PATHOLOGIST Place and Date DARWIN 1.5.95 Signature (see warning above) <i>J. Smith</i>		

2) INFECTIOUS SUBSTANCES AFFECTING HUMANS (UN 2814)

*** EXAMPLE ONLY ***

SHIPPER'S DECLARATION FOR DANGEROUS GOODS											
Shipper Officer in Charge Regional Veterinary Laboratory WOLLONGBAR NSW 2477				Air Waybill No. 800 1234 5675 Page 1 of 1 pages Shipper's Reference Number (optional)							
Consignee Head of Laboratory (ATTN: Dr Harvey Westbury) Australian Animal Health Laboratory Ryrie St GEELONG VIC 3220				<table border="1"> <tr> <td>TNT</td> <td>Air Couriers</td> </tr> <tr> <td colspan="2">On time every time</td> </tr> </table>				TNT	Air Couriers	On time every time	
TNT	Air Couriers										
On time every time											
Two completed and signed copies of this Declaration must be handed to the operator.				WARNING Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.							
This shipment is within the limitations prescribed for (delete non-applicable)		Airport of Departure		Shipment type (delete non-applicable) <input type="checkbox"/> NON - RADIOACTIVE <input checked="" type="checkbox"/> RADIOACTIVE							
<input type="checkbox"/> PASSENGER AND CARGO AIRCRAFT <input checked="" type="checkbox"/> CARGO AIRCRAFT ONLY		BALUNA									
Airport of Destination MELBOURNE											
NATURE AND QUANTITY OF DANGEROUS GOODS <small>(see sub-Section 8.1 of IATA Dangerous Goods Regulations)</small>											
Dangerous Goods Identification											
Proper Shipping Name	Class or Division	UN or ID No.	Subsidiary Risk	Quantity and type of packing	Packing Inst.	Authorization					
INFECTIOUS SUBSTANCES AFFECTING HUMANS (RABIES)	6.2	UN 2814		1 POLYPROPYLENE BOX CONTAINING 5 x 10 ml PLASTIC VIALS IN METAL INNER	602						
Additional Handling Information PLEASE REFRIGERATE IF DELAYED IN TRANSIT											
I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labelled, and are in all respects in the proper condition for transport by air according to the applicable IATA Dangerous Goods Regulations, Carrier's conditions and relevant International and National laws or Government Regulations.				Name/Title of Signatory J. BROWN VETERINARY PATHOLOGIST Place and Date WOLLONGBAR 1.5.95 Signature <i>J. Brown</i> <small>(see warning above)</small>							

Dangerous Goods Check List—Ansett Air Freight - Extract



CONSIGNMENT NOTE/AIRWAY BILL	ORIGIN	DESTINATION
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A ANSETT AUSTRALIA

Dangerous Goods Acceptance Check List

Instructions:

Never accept or refuse a shipment until all items have been checked

Tick either Yes, No or NIA (not applicable) to each question. ~

Do not accept the shipment if the answer to any question is No.

Retain original copy of the check list on file with a copy of the

Shippers Declaration for a period of not less than 3 months. ~

For Shipments of Dry Ice commence at question 27 part B.

Delete Non-Applicable Shipment Type

NON-RADIOACTIVE

RADIOACTIVE

Non-Radioactive				Radioactive			
QUESTION	YES	NO	N/A	Applicable Section of D.G.R.	QUESTION	YES	NON
Part A - Shipper's Declaration					1. Are there at least 2 original copies of the Declaration?		
Are there at least 2 original copies of the Declaration?				Refer 8.1.2 . 3	2. Is the declaration format as prescribed by IATA Regulations and in English?		
Is the declaration format as prescribed by IATA Regulations and in English?				Refer 8.1.2.1	3. Is the Shippers and Consignees name and address shown in full?		
Is the Shippers and Consignees name and address shown in full and for Division 6.2 Infectious Substances) is telephone number also shown?				Refer 8.1.6.1 & 8.1 .6.2	4. Is the Air Waybill/ACN number entered? (May be completed by carrier)		
Is the Air Waybill/ACN number entered? (May be completed by carrier)				Refer 8.1.6.3	5. Is the number of pages indicated?		
Is the number of pages indicated?				Refer 8. 1.6.4	6. Has the non applicable aircraft type been deleted?		
Has the non applicable aircraft type been deleted?				Refer 8.1.6.5	7. Is the Airport or city of departure and destination shown in full? (May be completed by carrier)		
Is the Airport or city of departure and destination shown in full? (May be completed by carrier)				Refer 8.1.6.6 & 8.1 .6.7	8. Has the Non-Radioactive shipment type been deleted?		
Has the Radioactive shipment type been deleted?				Refer 8. 1.6.8	9. Column-Proper Shipping Name Is the proper shipping name shown?		
Column-Proper Shipper Name Is the proper shipping name shown and where applicable the technical name for N.O.S. items with an asterisk?				Refer 4.2 Column 8 Refer 8.1.6.9 Step 1	10. Column Class or Division Is the correct class number (7) shown?		

<p>Column Class or Division Is the correct class or division number shown and for Class 1 items the compatibility group?</p>			<p>Refer 4.2 Column C Refer 8.1.6.9 Step 2</p>	<p>11. Column UN or ID Number Is the correct UN Number shown preceded by the prefix UN?</p>		
<p>Column UN or ID Number is the correct UN or ID number shown preceded by the applicable prefix?</p>			<p>Refer 4.2 Column A Refer 8.1.6.9 Step 3</p>	<p>12. Column Subsidiary Risk If relevant, has a subsidiary risk been shown?</p>		
<p>if relevant, is the UN packing group number shown?</p>			<p>Refer Sect 8 8.1.6.9 Step 4</p>	<p>13. Column Quantity and Type of Packaging The following information to be shown in sequence. (a) Are the words Radioactive Material shown? (if not included in the proper shipping name) b) Is the name or symbol of the Radionuclide in the material shown 7</p>		
<p>Column Subsidiary Risk If relevant, has a subsidiary risk been shown?</p>			<p>Refer 4.2 Col D Refer 8. 1.6.9 Step 5</p>			
<p>Column Quantity and Type of Packaging (a) Is the correct number of packages, the type of packing and the quantity of the material (net or gross) shown & is this within specified limits? g different dangerous goods are packed in one ing is the relevant "Q" value shown 7 od has this been indicated overpack</p>			<p>Refer 4.2 Columns H & J Refer 8.1.6.9 Refer 5.0.2. 11 (g) Refer 8.1.6.9 Step 7 Table 9.3A Refer 8. 1.6.9 Step 9</p>	<p>(c) Is the physical and chemical form of the material described or (if relevant and if not included in the proper shipping name) the words "special form " shown. (d) If relevant, the group for 15A material or SCO using "LSA-P, "3A-II", SLSA-III", "SCO-I", "SCO-IR appropriate _tes of same type and</p>		

EXTRACT

APPENDIX 6 Decontamination procedures for transmissible spongiform encephalopathy agents

The National Health and Medical Research Council of Australia (NHMRC) is preparing guidelines on patient management and infection control for transmissible spongiform encephalopathy (TSE) agents (see References).

The following information is reproduced from the United Kingdom Ministry of Health publication—*Precautions For Work With Human And Animal Transmissible Spongiform Encephalopathies*, Annex 2 pp 21–24 (Advisory Committee on Dangerous Pathogens, London, Her Majesty's Stationary Office Crown Copyright 1994, London ISBN 0 11 321805 2). Crown copyright is reproduced with the permission of the Controller of HMSO.

Decontamination procedures for TSE agents

1. The recommended treatments given in this annex are largely based on work with the scrapie agent. Where findings have been paralleled by work on the agent of Creutzfeldt-Jakob disease, this is mentioned specifically. For most situations, porous load autoclaving is the method of choice for decontamination and rendering waste material safe to handle.

1. Physical and chemical methods of decontamination

Heat

2. **Boiling:** The agents are not greatly affected by boiling, and boiling water treatment for decontamination is not adequate.

3. **Autoclaving—Gravity displacement autoclaves:** Gravity displacement autoclaving at 132°C for one hour inactivates both CJD and the scrapie agent. The lower commonly used temperature of 126°C is unreliable despite extension of exposure to two hours.

4. **Autoclaving—Porous load autoclaves:** The use of a porous load autoclave is preferred. A cycle of 18 minutes at 134°C to 138°C is recommended or six cycles of 3 minutes at the same temperature.

Table I Autoclaving regimes currently recommended (porous load)

- | |
|--|
| <ul style="list-style-type: none"> • a single cycle 134°C (+4/-0) (30lbs psi)
18 mins (holding time at temperature) • six separate cycles 134°C (+4/-0) (30lbs psi)
3 mins (holding time at temperature) |
|--|

lbs psi = pounds per square inch

Although no practical problems appear to have arisen with this time and temperature combination, recent preliminary studies of a scrapie agent under rigorous experimental conditions have shown some residual infectivity. This may be due to the use of relatively high-titred material and more thermostable strains. Further work is planned to confirm the appropriate lower temperature limit.

5. **Dry heat:** Dry heat treatment of macerated infected tissue at 160°C for 24 hours, leaves some residual infectivity. Lyophilised (freeze-dried) tissue homogenates exposed to 360°C for one hour also remain infectious. As the water content of material to be heat-treated has an influence, desiccation confers a particular resistance to inactivation. The infectivity of moist tissue is destroyed in 60 minutes at 200°C. Substantial, but not complete, inactivation of both CJD and scrapie is attained after one minute at 240°C.

Chemical decontamination.

6. The TSE agents are not significantly affected by the majority of chemical disinfecting agents, such as those listed in Table II. Autoclaving is the method of choice for decontamination, but where this is not practicable, the disinfectant of choice is sodium hypochlorite. A one-hour treatment with sodium hypochlorite at 20 000 ppm available chlorine is appropriate for TSE agents.

Table II Chemical disinfectants shown to be ineffective against the TSE agents

alcohols	ethylene oxide
formaldehyde	formalin
glutaraldehyde	hydrogen peroxide
iodophors	phenolics
B -propiolactone	

Ionising and UV radiation

7. Doses of ionising and UV radiation which inactivate conventional microorganisms have little effect on TSE agents. The doses required to produce a significant reduction in infectivity are too great to be of practical value.

Desiccation and environmental exposure

8. CJD agent can survive at room temperature for at least 28 months and residual scrapie infectivity has been found after burial for 3 years. Therefore, unless appropriate chemical or physical decontamination methods are used there is the potential for the accumulation of infected material on work surfaces and equipment.

2. Specific decontamination procedures

Treatment of heat stable equipment and non-disposable protective clothing

9. Autoclaving (to the regimes detailed in Table I) is the decontamination method of choice for heat stable items such as non-disposable protective clothing, surgical and postmortem instruments and laboratory equipment. Exceptionally, some instruments may be immersed in sodium hypochlorite containing 20 000 ppm available chlorine for at least one hour.

Treatment of work surfaces and non-heat stable equipment

10. **Hypochlorite:** A one-hour exposure to sodium hypochlorite containing 20 000 ppm available chlorine is effective in destroying scrapie infectivity on open surfaces. Repeated wetting with the disinfectant is necessary over the treatment period. As this concentration of hypochlorite can be corrosive for metals and some commonly used surface finishes, work that involves the handling of infected materials should be conducted only on resistant surfaces or work benches shielded by disposable absorbent plastic-backed

temporary coverings. Users should note that the concentration of available chlorine in hypochlorite solutions may be significantly affected by the presence of organic matter especially blood. The use of enamel, heat-stable plastic or disposable trays is recommended to confine contamination. These should be autoclaved after use (see above). Temporary bench coverings and disposable trays should be bagged for incineration.

11. **Sodium hydroxide:** Sodium hydroxide solution 2M is also active against scrapie but may not completely inactivate high concentrations of agents especially if protected by dried organic material. Constant re-wetting during the treatment of surfaces is necessary.

12. **Detergent washing:** This may result in a dilution of the agent or contaminating material, but is not an effective way of decontaminating surfaces.

Decontamination and disposal of liquids (fixatives/solvents/scintillation fluids etc)

13. TSE contaminated fluids should be disposed of regularly to limit the volumes to be dealt with at one time. Large volumes of organic solvents should be disposed of by the commercial controlled incineration techniques generally used for these materials. Small volumes of fluid may be conveniently absorbed in containers carrying sawdust ready for incineration. Water-based fluids may be autoclaved (see above) or treated with hypochlorite to achieve a final concentration of at least 20 000 ppm of available chlorine allowing for the effects of any organic matter present (see above).

Formaldehyde solutions must not be autoclaved or mixed with other chemical disinfectants. Contaminated formalin solutions should be disposed of by incineration. Workers must ensure that alternative methods of formalin disposal such as discard to the sewerage system are in accordance with local Water Authority rules.

Decontamination of microbiological safety cabinets

14. As indicated above, formalin or rather in this context gaseous formaldehyde, which is the conventional medium for the fumigation of safety cabinets, is not effective against the TSE agents; it may in fact stabilise them. Nonetheless, fumigation will need to be carried out as a precaution against other infectious agents that may be impacted on the surface of the cabinet's High efficiency particulate air filter (HEPA) filter. Service engineers will require the unit to be decontaminated before changing filters.

15. Due to the difficulties associated with their decontamination, it is recommended that safety cabinets used for work with TSEs should be of the type with the facility for removing HEPA filter units by bagging. Whether or not bagging of the filter as it is withdrawn is possible, spraying the filter face after fumigation and before removal with eg hair spray will help to limit the shedding of particulate matter. Where a Class II cabinet (BS:5726:1992) is to be used, a model that has the main HEPA filter immediately below the work surface is preferred as this will prevent contamination of the plenum of the cabinet. With the filter in this position, use may be made of liquid latex to seal the filter surface before removal. Pre-filters (dust filters) are generally easily removed and after immersion treatment with 2M sodium hydroxide solution (see above) to limit dust dispersal they should be contained securely for incineration or safe transport to the autoclave. If made of durable but not heat stable material, they may alternatively be treated with hypochlorite solution containing 20 000 ppm available chlorine.

16. Working in a shallow tray in the cabinet will limit dispersal onto work surfaces by splashing but it is *essential* to ascertain by testing the cabinet with the tray in situ that containment for operator protection is not affected. (See BS 5726:1992 for detail of

containment testing.) Another option is to tape disposable plastic backed absorbent paper to the working surface in order to minimise contamination. The covering must be renewed regularly (preferably after each period of work) and incinerated.

Fixation for histology

17. Conventional methods of tissue fixation employing formalin or glutaraldehyde are known to be ineffective in destroying CJD and scrapie infectivity. It is reasonable to assume that the other TSE agents are similarly resistant. Exposure to 96% formic acid for one hour after formalin fixation has been shown to be effective in reducing scrapie and CJD infectivity substantially.

Disposal of tissues

18. Final disposal of processed tissue should be by incineration using appropriate precautions during handling and packaging for carriage. Stored fixed material (bulk tissue, blocks and stained or unstained slides) from known or suspected cases of TSE must be handled as though it were infectious, and attention paid to the possibility of sharps exposure.

APPENDIX 7 Format of a laboratory contingency plan

The following is a suggested format and checklist of components for a laboratory contingency plan.

VETERINARY LABORATORY (.....TOWN.....) EXOTIC DISEASE CONTINGENCY PLAN

INTRODUCTION

- **This Contingency Plan is an extension of the procedures that apply for normal laboratory operation.** *During formulation and review of the Plan, deficiencies in the standard operating procedures can be identified and rectified. It is less disruptive to tighten up sound low-risk routines with which laboratory staff are familiar, than to impose a completely new set of procedures in an exotic disease emergency.*
- **The Plan should be reviewed annually.** *The plan and particularly its security components, can be tested regularly, with minimum disruption to normal laboratory operations.*
- **The Plan is an ‘active’ document.** *It is stored on computer and updated following annual testing and review.*
- **The Plan should be readily accessible to laboratory staff.** *All staff should be familiar with the current Plan as they are with other manuals of standard operating procedures within the laboratory (eg Occupational Health and Safety Manual; Standard Operating Procedures: Laboratory Methods).*
- **The Plan contains sufficient information and instructions under each heading for all laboratory staff to understand what is required of them.** *It is a plan of specific activities and not simply a list of principles.*
- **The Plan is comprehensive and self-contained.** *Copies of relevant information from other sources (eg departmental circulars, other publications) and completed examples of all forms that must be used (eg Shippers Declaration for Dangerous Goods) are included as Appendixes A–I to make the Plan a ‘one-stop shop’ for laboratory staff in the event of an exotic disease emergency.*
- **The AUSVETPLAN Laboratory Preparedness Manual is included as Appendix I of this Contingency Plan**

1 PROCEDURES FOR QUARANTINE AND DECONTAMINATION OF THE LABORATORY AFTER SPECIMENS FROM A SUSPECTED OR CONFIRMED EXOTIC DISEASE HAVE BEEN HANDLED (ie AFTER A SINGLE EXPOSURE)

1.1 Notification

1.1.1 Laboratory staff

- immediately notify the officer-in-charge (OIC) of the laboratory when a specimen from a suspected exotic disease is identified

1.1.2 OIC

- notifies State/Territory chief veterinary officer (CVO)
- notifies appropriate individuals in charge of adjacent establishments affected by the exotic disease emergency

1.2 Evaluation of level of security required for the suspected agent

1.2.1 References

- *Exotic Diseases of Animals: A Field Guide of Australian Veterinarians* (Geering, W.A., Forman, A.J. and Nunn, M.J., Australian Government Publishing Service, 1995)
- AUSVETPLAN Disease Strategy for the specific exotic disease suspected

1.2.2 Nominate staff involved in assessment

- eg OIC, senior laboratory staff

1.2.3 Consult with appropriate experts

1.2.4 Issues to be considered

- risk of spread of the agent via aerosols, animals, animal products, fomites, instruments, equipment, hands, effluent
- viability of the agent, and resistance to cleaning and disinfection
- zoonotic potential
- risk to animals at laboratory and on adjacent property

1.3 Handling of specimens

1.3.1 Situations where exotic disease specimens may be handled

- routine laboratory specimens: exotic disease suspected (Category 3) or requiring elimination (Category 2) during routine examination of specimens
- specimens (Category 2 or 3) brought in by diagnostic team: these specimens would normally have been packed in the field for dispatch to AAHL, and brought to the laboratory only for safe storage
- specimens of low-risk (Category 1 or 2) brought in by veterinary practitioner, government field officer, farmer or courier

1.3.2 Disposal of contaminated material

- this should occur as close as possible to the laboratory to minimise the area of potential contamination

- where possible, bag and incinerate animal bodies and tissues on site. Bag other laboratory waste in autoclave bags, and incinerate after autoclaving
- laboratories without direct access to autoclave and incinerator should double bag and seal all contaminated waste at the site of handling, and thoroughly disinfect (preferable in a dunk tank) the external surface of the bags before transferring them securely for safe disposal (eg by incinerator at another site)
- double bag protective clothing (laboratory coats, overalls) in autoclave bags. Thoroughly disinfect the surface of the outer bag before transporting the clothing from the contaminated area for autoclaving and subsequent laundering
- soak grossly contaminated protective clothing overnight in disinfectant before laundering
- immerse boots in disinfectant

1.4 Identification of high-risk laboratory areas

1.4.1 Refer to building plan and site plan (*see Appendix A*)

1.4.2 Isolation and quarantine of high-risk areas

- identify all areas exposed to specimens (courier vehicle, driveway, outside receival area, holding pens, specimen receival area, postmortem room, laboratories, cold rooms)
- prepare and display appropriate notices
- specify physical barriers, doors, gates, fences
- place footbaths at all entry points to building and contaminated area
- organise protective clothing
- hold and treat effluent. If this is not possible, advise CVO
- treat contaminated laboratory materials (*see 1.3*)

1.4.3 Consider consequences of security measures

- *see 1.1 Notification*
- assess impact on adjacent facilities and their operations; notify laboratory sections, adjacent units and administrators affected
- assess implications for laboratory animal facilities; OIC should consult with appropriate authorities, eg regional manager, CVO, and liaise with local officers to determine whether any animals in laboratory animal facilities should be destroyed
- assess whether to continue/discontinue/reduce/relocate routine diagnostic services during the exotic disease emergency
- advice clients of alternative arrangements for routine diagnostic specimens if changes are made

1.5 Identification of high-risk staff

1.5.1 Refer to staff list (*see Appendix B*)

1.5.2 Staff with direct or indirect contact with specimens

- courier

- staff in specimen receipt area
- duty pathologist
- postmortem room staff
- cleaners and general hands
- other laboratory staff

1.5.3 Staff briefing

OIC or nominee briefs all staff regarding:

- restriction of staff movement
- restriction of staff contact with other animals
- fate of animals/birds at home
- zoonotic potential
- decontamination requirements including treatment of clothing and shoes

1.6 Dispatch of specimens to AAHL

1.6.1 Reference

- **AUSVETPLAN Laboratory Preparedness Manual, Section 6:**
Handling specimens for diagnosis of exotic disease.

1.6.2 Approval

- OIC obtains CVO approval to send Category 3 specimens to AAHL
- OIC advises veterinary pathologist at AAHL by phone, confirming type of specimens to be submitted

1.6.4 Packing and dispatch

- staff member, preferably IATA accredited (*see* Appendix B) packs and dispatched specimens to AAHL (*see* Appendix F)

1.6.5 Shipping details

- OIC advises AAHL by phone or fax of all shipping details (including courier consignment number for specimens)
- OIC also advises CVO Victoria of all shipping details if Category 3 specimens are being sent to AAHL

1.7 Cleaning and decontamination

1.7.1 References

- **AUSVETPLAN Laboratory Preparedness Manual, Section 5**
- **AUSVETPLAN Decontamination Manual.**
- Stores (*see* Appendix E).

1.7.2 Methods

- steam cleaner
- mechanical
- choice of disinfectant chemicals (*see* Laboratory Preparedness Manual, Section 5, Tables 1 & 2)

1.7.3 Targets

- high risk areas
- low risk areas
- high risk staff
- low risk staff
- vehicles (eg courier vehicles)
- contaminated laboratory protective clothing

- contaminated street clothes and shoes

2 PROTOCOL FOR QUARANTINE AND OPERATION OF THE LABORATORY INVOLVED IN AN EXOTIC DISEASE OUTBREAK (EXOTIC DISEASE LABORATORY — ONGOING OPERATIONS)

2.1 Notification

OIC notifies appropriate individuals in charge of adjacent establishments affected by the exotic disease emergency

2.2 Evaluation of level of security required for the suspected agent

As for 1.2.

2.3 Handling of specimens

As for 1.3

2.4 Identification of high-risk laboratory areas (establishment of an *exotic disease laboratory*)

Comprehensive plans should be developed for the establishment and operation of a microbiologically secure facility designated as the *exotic disease laboratory* (EDL) within the laboratory complex, to provide ongoing laboratory services for an exotic disease emergency

Different levels of microbiological security may be required in the EDL at different stages of the exotic disease emergency:

- during the active high-risk phase.
- during the later low-risk phase (eg serological)

2.4.1 Refer to site plan and building plan (see Appendix A)

- consider type of laboratory work required, eg necropsy, agent identification, serology
- define the appropriate EDL location for this work.

2.4.2 Specify all actions required to secure the EDL

- restrict access and movements
 - EDL staff to EDL
 - other laboratory staff within the laboratory buildings
 - public to laboratory site and buildings
 - vehicles:
 - courier for suspected exotic specimens
 - courier for routine specimens;
 - staff
 - public, including trade vehicles
- specify physical barriers, doors, gates, fences
- place footbaths, showers – specify locations
- organise protective clothing – specify requirements
- relocate existing staff and equipment for EDL
- establish *standard operating procedures* for the EDL. The standard procedures that apply to normal operation of the laboratory are upgraded appropriately to meet the microbiological security requirements of the EDL. **It is essential that the standard operating**

procedures for normal operation of the laboratory are sound and able to be easily upgraded for the EDL

- set up EDL with laboratory equipment and facilities appropriate for disease concerned, including necropsy area if required
- arrange through SDCHQ requisition of equipment not immediately available, eg egg incubators, dunk tanks
- set up communications centre in EDL
- arrange through SDCHQ for supply of:
 - telephones
 - facsimile machines
 - photocopier
 - computer link to ANEMIS
 - 2-way radio/portable telephones

2.4.3 Consider consequences of security measures

- assess impact on adjacent facilities and their operations (*see* 2.1 Notification)
- assess whether to continue/discontinue/reduce/relocate routine diagnostic services and other laboratory activities (eg research) during the exotic disease emergency; review throughout the emergency
- advise clients of alternative arrangements for routine diagnostic specimens if changes are made

2.4.4 Independent evaluation of security components of the contingency plan by an AAHL officer

- this review should be undertaken as part of the testing of the contingency plan

2.4.5 Diagnostic procedures for specific exotic disease

- AAHL will provide the protocols, reagents and where necessary, training for EDL staff

2.5 Operation of exotic disease laboratory

2.5.1 Management structure

- appoint OIC Exotic Disease Laboratory (EDL)
- identify line responsibilities in high-risk area (EDL) and low-risk area of the laboratory

2.5.2 Staff numbers

- identify professional/technical/administrative staff required
- staff rosters
- list of staff skills

2.5.3 Morale

- designated personnel officer to monitor staff needs
- monitor workload/overtime/time off
- monitor morale of laboratory staff not directly involved in exotic disease emergency

2.5.4 Communication

- within EDL – daily briefing of staff
- within non-exotic disease laboratory area – daily briefing of staff section leaders; regular briefing of all staff
- between laboratory (EDL and non-EDL area) and local disease control centre (LDCC); state disease control headquarters (SDCHQ) – daily contact

2.5.5 Integration of EDL operation with AUSVETPLAN Operational Procedures Manuals, Management Manuals and Disease Strategies

- diagnostic team (*see* AUSVETPLAN Control Centres Management Manual, Section 3.4)
- means of communication with EDL – fax, phone, telex, computer network, written, other
- communication protocols
- compatibility with ANEMIS:
 - specimen accession
 - reporting system
 - senior laboratory veterinarian responsible
- established line of responsibility – CVO/SDCHQ/LDCC/EDL
- situation reports:
 - to EDL from LDCC
 - from EDL to LDCC
- daily debriefing at a standard time from LDCC
- nominated contact person in laboratory for all external contacts other than LDCC, SDCC or CVO

2.6 Stores, equipment, reagents

2.6.1 Exotic disease diagnostic kit (*see* Appendix D)

- hold at the laboratory for immediate dispatch to the field with and investigating veterinarian or a diagnostic team
- kit includes a supply of AAHL specimen transport containers
- specify how frequently checked (6 monthly, annually).

2.6.2 Cleaning and decontamination (*see* Appendix E)

- maintain adequate stores of disinfectants on hand at the laboratory for initial phase of an exotic disease emergency.

2.6.3 Diagnostic reagents

- to be supplied from AAHL as required.

2.6.4 Stores: other

- normal laboratory stores of protective clothing (boots, overalls, laboratory coats) should be maintained in quantities sufficient to meet initial demands of an exotic disease emergency.
it is impractical to maintain permanent stores of these items exclusively for exotic disease outbreaks.
- extra supplies of protective clothing (overalls, boots, coats and shoes) will need to be ordered
- laboratory consumables

2.6.5 Ordering of laboratory consumables during an exotic disease emergency

- nominate one person to coordinate ordering within EDL
- nominate one person as administrative support contact outside the EDL
- key people from each discipline to advise on sources of laboratory consumables

3 STAFF TRAINING

3.1 References

AUSVETPLAN Laboratory Preparedness Manual, Section 3: Training; AUSVETPLAN Summary Document; AUSVETPLAN Disease Strategies

3.1 Exotic disease awareness and strategies to re-establish freedom

3.2 Development of technical and scientific skills

3.3 Exercises to test laboratory contingency plan

APPENDIXES

A Site and building plans

- air conditioning
- building drainage system

B Staff

- staff list – skills and exotic disease experience
- IATA accredited staff

C State emergency contact numbers

D Exotic disease diagnostic kit

References: AUSVETPLAN Control Centres Management Manual, Section 3 and *Exotic Diseases of Animals: A Field Guide for Australian Veterinarians* (Geering W.A., Forman, A.J. and Nunn, M.J., Australian Government Publishing Service, 1995)

E Stores

- cleaning and decontamination (*see* the **AUSVETPLAN Decontamination Manual**)
- equipment and chemicals
- suppliers of overalls, laboratory coats, boots and shoes
- suppliers of consumables

F Packaging and transport of specimens to AAHL

- Reference: AUSVETPLAN Laboratory Preparedness Manual, Section 6: Handling specimens for diagnosis of exotic disease.
- Checklist – including examples of completed forms, eg AAHL Specimen Advice Note, Shippers' Declaration for Dangerous Goods).

G State government circulars on exotic disease procedures

H Training resources

- publications
- transparencies
- videos
- histopathology slides

I AUSVETPLAN Laboratory Preparedness Manual

GLOSSARY

ANEMIS	<i>AN</i> imal Health <i>EM</i> ergency <i>I</i> nformation <i>S</i> ystem. An information system for the collection, assimilation, actioning and dissemination of essential disease control information using paper documentation and EDP assistance.
AUSVETPLAN	A series of documents that describes the Australian response to exotic animal diseases; linking policy, strategies, operations, coordination and emergency management plans.
AUSVETPLAN Disease Strategies	The broad plans that would be adopted to control or eradicate an exotic disease. They have been approved by ARMCANZ. (Previously known as Model Control Plans.)
Chief veterinary officer	The veterinary officer of each State or Territory animal health authority who has prime responsibility for animal disease control in that State or Territory.
Consultative Committee on Exotic Animal Diseases	A committee of State/Territory CVOs, AAHL and CSIRO, chaired by the CVO of Australia (Cwlth DPIE), to consult in emergencies due to the introduction of an exotic disease of livestock, or serious epizootics of Australian origin.
Control area	A declared area in which defined conditions apply to the access or egress of specified animals or things. Conditions applying in a control area are of lesser intensity than those in a restricted area. The limits of a control area and the conditions applying therein may be varied rapidly according to need.
Disinfectant	Any agent used to destroy microorganisms outside a living animals.
Disposal	Sanitary removal of animal carcasses and things by burial, burning or some other process so as to prevent the spread of disease.
Emergency	Requiring an immediate response and highest priority for allocation of resources.
Exotic animal disease	Disease affecting animals (which may include man) not presently occurring in Australia.
Field veterinary officer	Veterinary officer with responsibility for activities within individual districts of a Region.
Fomite	Contaminated material or object capable of spreading the disease agent.
Infected animal	An animal infected with or believed to be infected with an exotic disease.

Infected premises	A defined area (which may be all or part of a property) in which an exotic disease exists, is believed to exist, or in which the infective agent of that exotic disease exists or is believed to exist. An infected premises is subject to quarantine served by notice and to eradication or control procedures.
Local disease control centre	An emergency operations centre responsible for the command and control of field operations in a defined area.
National disease control centre	An established centre in Canberra from which national disease control actions are directed and coordinated in an exotic animal disease emergency.
Operational procedure	Detailed instructions for carrying out common techniques employed in disease control such as valuation, destruction, decontamination etc.
Operations	The activities necessary to give effect to a disease control strategy.
Premises	Includes any land, house or other building or structure.
Quarantine	Legal restrictions imposed on a place, animal, vehicle or other things limiting movement.
Restricted area	A relatively small declared area (compared to a control area) around an infected premises that is subject to intense surveillance and movement controls
Role description	Statement of responsibilities of an officer within the overall operation.
Regional veterinary manager	Veterinary officer in charge of a designated departmental region.
State disease control headquarters	The emergency operations centre that directs the disease control operations to be undertaken in the State/Territory.
Strategy	The principles on which control of a disease is based.
Surveillance	A systematic program of inspection and examination of animals or things to determine the presence or absence of an exotic disease.
Survey	A program of investigation designed to establish the presence, extent of, or absence of disease.
Suspect animal	An animal which is likely to have been exposed to an exotic disease such that its quarantine and intensive surveillance, but not pre-emptive destruction, are warranted, OR; an animal not known to have been exposed to a disease agent but showing clinical signs requiring differential diagnosis.
Suspect materials or things	Materials or things likely to be contaminated by an exotic disease agent.
Suspect person	A person whose person or property is likely to have been contaminated by an exotic disease agent.

Suspect premises	Premises containing suspect animals which will be subject to quarantine and intensive surveillance.
Tracing	The process of locating animals, persons or things which may be implicated in the spread of disease so that appropriate action can be taken.
Zoonosis	A disease that can be spread between animals and people.

Abbreviations

AAHL	Australian Animal Health Laboratory, Geelong
AHC	Animal Health Committee
1. ANEMIS	Animal health emergency information system
ARMCANZ	Agriculture and Resource Management Council of Australia & New Zealand
AUSVETPLAN	Australian Veterinary Emergency Plan
CCEAD	Consultative Committee on Exotic Animal Diseases
CJD	Creutzfeldt-Jakob disease
COMVETPLAN	Commonwealth Veterinary Emergency Plan
CVO	Chief veterinary officer
DG	Dangerous Goods
DPIEVETPLAN	Department of Primary Industry and Energy Veterinary Emergency Plan
EDL	Exotic disease laboratory
EDSC	Exotic Diseases Sub-committee of AHC
FMD	Foot-and-mouth disease
HEPA	High efficiency particulate air filter
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
LDCC	Local disease control centre
OIC	Officer-in-charge
OIE	World Organisation for Animal Health [Office International des Epizooties]
PI	Packing information
RVL	Regional Veterinary Laboratory
RVF	Rift Valley fever
SCARM	Standing Committee on Agriculture and Resource Management
SDCHQ	State/Territory disease control headquarters
TSE	Transmissible spongiform encephalopathy
UV	Ultraviolet

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