

**AUSTRALIAN VETERINARY EMERGENCY PLAN**

# **AUSVETPLAN**

**1998**

## **Enterprise Manual**

### **Meat Processing**

AUSVETPLAN is a series of technical response plans that describe the proposed Australian approach to an emergency 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 Enterprise Manual forms part of:**

**AUSVETPLAN Edition 2 1996**

[AUSVETPLAN Edition 1 was published in 1991]

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

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[AUSVETPLAN Edition 2 Interim Document was published in 1996]

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## PREFACE

This **Enterprise Manual** for the red/pig **meat processing industry** forms part of the **Australian Veterinary Emergency Plan**. AUSVETPLAN is an agreed management plan and set of operational procedures that would be adopted in the event of an emergency animal disease outbreak in Australia. The procedures are briefly outlined in the **Summary Document** and details are given in the individual **Disease Strategies**. The manuals are written with specific reference to certain animal industries where a greater than normal risk of harm could be expected from an emergency disease outbreak.

The manual is written for two major target groups:

1. Emergency disease decision makers at state or national level who are unfamiliar with meat processing operations. The manual aims to provide both an overview of the meat processing industry and also guidance in appropriate policy and applicable procedures.
2. Meat processing industry staff and veterinarians who need specific information as to how to perform operational tasks to exclude, contain or eradicate the disease, and to prepare contingency plans for their specific enterprise.

It is expected that there are two main situations when this manual would be applicable:

- A red/pig meat processing establishment operating in the vicinity of an outbreak of an emergency disease (Section 3);
- An emergency disease is detected in an animal within an abattoir, or contaminated products are detected in a processing plant (Section 4).

The manual provides background information on how meat processing establishments operate, and possible procedures to reduce the risk or effects that an emergency disease outbreak would have on the industry, while ensuring these operations do not pose a risk of disease transmission (Section 2).

This manual is being released as a final document following full industry/government consultation and with the approval of the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ).

Detailed instructions for field implementation of the strategies are contained in the AUSVETPLAN **Operational Procedures Manuals** and **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 resource book *Exotic Diseases of Animals: A Field Guide for Australian Veterinarians* by W.A. Geering, A.J. Forman and M.J. Nunn, Australian Government Publishing Service, Canberra, 1995 (**Exotic Diseases Field Guide**) has been a source for some of the information about the aetiology, diagnosis and epidemiology of the diseases. It should be used as a field guide for veterinarians and other animal health personnel associated with exotic disease diagnosis and management in livestock enterprises.

The manuals will be revised and updated from time to time to ensure that they keep pace with the changing circumstances of the particular industry they cover. Comments and suggestions are welcome and should be addressed to:

The AUSVETPLAN Coordinator  
National Office of Animal and Plant Health  
Agriculture, Fisheries and Forestry – Australia  
GPO Box 858  
CANBERRA ACT 2601  
Tel: (02) 6272 5540; Fax: (02) 6272 3372

## Membership of writing group

John Lyons	AQIS, Department of Primary Industries, QLD
John Ryan	formerly Department of Primary Industries and Energy (Cwlth), ACT
Stuart King	NSW Agriculture
Tony Wigg	AQIS, Department of Primary Industries and Energy (Cwlth), SA, formerly ACT
David McFarlane (dec)	formerly CSIRO, Queensland
Fiona Spurling	formerly Department of Primary Industries, SA
Chris Bunn	Department of Primary Industries and Energy (Cwlth), ACT

*The writing group was responsible for drafting this strategy. However, the text may have been amended at various stages of the consultation/approval process and the policies expressed in this version do not necessarily represent the views of all members of the writing group. Contributions may also have been made by other people not listed above and the assistance of all involved is gratefully acknowledged.*

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# 1 NATURE OF ENTERPRISE

## 1.1 The Australian Meat Processing Industry

For the purpose of this manual the red/pig meat processing industry enterprise is defined as the industry covering animals from the point of entry into a processing establishment (abattoir, deboning establishment, etc), up to and including the processing and distribution of all meat, co-products, and liquid and solid wastes. This includes pet food establishments and knackeries.

The meat processing industry involves the humane slaughter and hygienic processing of cattle, pigs, sheep and to a lesser extent horses, goats and deer for human consumption.

### Significance

In 1997 Australia exported red meat to 109 countries generating income of over \$3 billion. Australia is the world's largest exporter of beef and veal with a 1997 value of \$2.5 billion. It is second to New Zealand as an exporter of mutton, lamb, and goat meat, with a value of about \$623 million. Australia is also an exporter of pig and horsemeat. By-product exports are valued at approximately \$900 million.

Any major emergency disease, such as foot-and-mouth disease, would have a marked effect on the Australian economy due to the trade implications of export restrictions.

The meat industry is labour intensive in spite of recent technological changes. The economies of rural Australian towns are dependent on the livestock producing industries and local meat processing plants to provide ongoing economic prosperity. The meat processing industry provides in excess of 30,000 direct jobs to regional areas.

The presence of disease affecting just one meat processing establishment would effect all meat processing establishments and may result in reduced slaughterings. It is important that the livestock and meat processing sectors of the industry cooperate in any eradication program to reduce any export restrictions and long-term loss of markets.

### Structure

Meat slaughtering establishments are widely dispersed throughout the country but most are concentrated in the high livestock density regions of south-eastern Australia. In January 1998 the Australian processing industry comprised 65 export registered abattoirs and 33 export boning establishments. Over 100 abattoirs producing solely for the domestic market also exist along with a number of pet food/knackery establishments.

Animals may be sent to slaughter either through the saleyards system or sold directly over the hooks from the producer's property. During a single day's production run it is common for processing establishments to handle animals originating from many different farms. The abattoir, therefore, is a useful place to monitor the health of livestock. It is necessary to closely monitor the health of animals because of the large mix of animals, the many movements and potential exposure to livestock diseases. Vigilance is required to ensure that any signs or suspicion of an emergency disease are quickly recognised.

In terms of numbers there are plants that process a thousand head of cattle a day while smaller plants may process less than one hundred. While most meat establishments specialise in the one species others kill up to three species at once on different chains. Many plants incorporate a boning room into their operations, although some plants transport carcasses for

boning at different establishments. As well as these slaughtering establishments there are other plants that perform value adding such as independent boning rooms, smallgoods manufacturing, butcher shops and retail outlets.

Such a diversity in animal and product movements within the industry complicates the tracing process in the event of an emergency disease. However, systems such as the National Vendor Declaration, transaction tags linked to state databases, and production chain segregation have improved the traceability aspects of production in recent times. This will be further improved on finalisation of whole of life, individual animal identification scheme currently being developed.

There are large amounts of liquid and solid waste, including contaminated cartons, plastics, clothing and equipment that must be considered in any control programs associated with meat processing establishments. The humidity due to the large water usage and the use of blowers for cooling and drying provides an environment that is conducive to the multiplication, maintenance and spread of many pathogens.

### **1.1.1 Legislation and existing codes of practice**

For the purpose of controlling emergency animal diseases, legislation, both at the Commonwealth and State/Territory level, has been enacted. The Commonwealth legislation is primarily concerned with preventing the introduction and establishment of disease or of things that may carry disease.

Legislation exists in all States/Territories aimed at the control and eradication of disease in animals, and establishes controls over the whole field of animal movement, treatment, decontamination, slaughter and compensation. Wide powers are conferred on government inspectors, including the power to enter premises, to order stock musters, to test animals and order the destruction of animals and products that are suspected of being infected or contaminated.

A list of States/Territories emergency disease legislation is provided in the AUSVETPLAN **Summary Document, Appendix 1**.

Other legislation that could be relevant to control procedures in the meat processing industry is listed below.

#### **Commonwealth**

This legislation includes regulations for the production and export of meat and meat products.

- *Export Control Act 1982* (access to this information is available through AQIS veterinarians)
  - Prescribed Goods (General) Orders
  - Export Meat Orders
  - Game, Poultry and Rabbit Meat Orders
  - Australian Export Meat Manuals (Volumes 1-3) Essential requirements for export
- *Australian Meat and Livestock Industry Act 1997*
- *Quarantine Act 1908*

#### **State/Territory**

##### **NSW**

- NSW Meat Industry Act (1978)

- NSW Meat Industry Regulations (1993)

#### Victoria

- Meat Industry Act (1993)
- Meat Industry Regulations (1994)

#### Queensland

- Meat Industry Act (1993)
- Meat Industry Regulations (1994)
- Meat Industry Standard (1994)

#### WA

- Health Act 1911
- Health – Meat Inspection, Branding and Processing Regulations (1950)
- Health (Game Meat) Regulations (1992)

#### SA

- Livestock Act (1997)
- Meat Hygiene Act (1994)
- Meat Hygiene Regulations (1994)

#### Tasmania

- Meat Hygiene Act (1985)
- Meat Hygiene Regulations (1986)

#### Northern Territory

- Meat Industries Act (1996) [Northern Territory]

#### ACT

- Food Act (1992)
- Public Health Act (1997)
- Public Health (Meat) Regulations
- Meat Act 1931

A list of Codes of Practice that may have relevance is at Appendix 2.

## 1.2 Emergency diseases of concern

Twenty-four diseases are currently identified as sufficiently serious, if they entered Australia, to require national response plans (see Appendix 1). Some of these are covered by a cost-sharing agreement permitting the costs of eradication to be shared between the Commonwealth and the States. This manual focuses on those diseases that could be transmitted by animal products. Tables 1 and 2 provide a summary of overseas requirements and the field strategies for combating these diseases.

Veterinarians and others looking for further information should refer to the individual **Disease Strategies** documents or *Exotic Diseases of Animals: A Field Guide for Australian Veterinarians* by W.A. Geering, A.J. Forman and M.J. Nunn, Australian Government Publishing Service, Canberra, 1995.

### 1.2.1 Diseases for which AUSVETPLAN strategies have been developed that can be potentially transmitted by animal products or by-products<sup>1</sup>

#### **African horse sickness**

An infectious insect-borne viral disease of horses and mules with other equines only slightly affected. It is frequently fatal in susceptible horses, with clinical signs and lesions resulting from selective increased vascular permeability, resulting in an impairment of the respiratory and circulatory systems. In nature the virus is transmitted by midges (*Culicoides* spp) causing a seasonal incidence in temperate climates.

Dogs can be infected from eating horsemeat. Dogs should not have access to hides, other raw by-products or discharges.

#### **African swine fever**

A highly contagious, generalised virus disease of pigs. No other mammalian hosts occur. It is transmitted by direct contact, inanimate objects and ticks. The virus is very resistant to inactivation. The acute form of the disease is characterised by pronounced haemorrhage of internal organs and a mortality of up to 100% in infected herds. Milder forms of the disease also occur.

All products and by-products are potentially infective. Live pigs must have no contact with products or by-products. Unauthorised swill feeding must be strictly prohibited. Pigs that die in the pens on the establishment should be disposed of by rendering (see Appendix 4), incineration or secure burial.

#### **Aujeszky's disease**

Also known as pseudorabies, this disease is caused by a herpesvirus that infects the nervous system and other organs such as the respiratory tract in virtually all mammals except humans and the tailless apes. It is primarily associated with swine, which may remain latently infected following clinical recovery.

Product may be used for human consumption, but there is some risk of infection in dogs and cats from being fed raw contaminated meat or offals. Dogs have died as a result of eating meat from viraemic pigs. Product and co-product are not thought to present a risk of infection to pigs due to the dose of virus required to infect via the oral route in this species. Product and co-product derived from viraemic animals are potentially infective to other host species. The Office International des Epizooties (OIE) Animal Health Code recommends importation of meat and meat products from animals slaughtered in an abattoir and found to pass health inspections before and after slaughter (see Table 2 page 9).

Effluent from pens and yards should be disposed of so as to prevent contact by host species. Aujeszky's disease virus will not survive more than three days in effluent pits.

#### **Bovine spongiform encephalopathy (BSE)**

A fatal, neurological disease of adult cattle, characterised by a long incubation period, followed by progressive neurological degeneration. Typical signs are abnormal posture, development of violent behaviour, heightened sensory perception, decreased milk production, weight loss (despite a good appetite), and death.

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<sup>1</sup> In this manual the terms co-product and by-product have been treated as equivalent

The disease was first recognised in the United Kingdom in 1986, and probably arose because changed practises in processing meatmeal permitted transmission of the scrapie agent to cattle.

Animals showing neurological signs at ante-mortems are to be identified to property of origin, clinically examined, subjected to post-mortem and the brain collected for laboratory examination. Animals suspected of having BSE should be destroyed and not used for human or animal consumption.

#### **Classical swine fever (hog cholera)**

A highly contagious disease capable of spreading rapidly in susceptible pig populations. In the acute form, the disease is characterised by fever, severe depression, multiple haemorrhages, and rapid deaths. Strains of the virus of lower virulence cause subacute and chronic forms of the disease that include complications of pneumonia and diarrhoea.

Contaminated products and by-products may infect pigs. The disease is easily transmitted through swill.

#### **Foot-and-mouth disease (FMD)**

An acute, highly contagious viral infection of domestic and wild cloven-hoofed animals. It is characterised by fever and vesicles in the mouth, nose, feet and teats. Serious production losses can occur, but deaths are unlikely except among young animals. For more information, see AUSVETPLAN **Disease Strategy**.

Virus is not known to survive in meat but will survive in bone marrow and lymph nodes. Virus may remain in hides for long periods.

Blood can hold virus for 4 to 5 days and special attention should be paid to preventing live cattle from coming into contact with blood.

#### **Rift Valley fever**

This is a mosquito-borne disease of cattle, sheep, goats and humans, characterised by high rates of abortions and high rates of mortalities in young animals. Severe disease can occur in humans requiring special safety precautions.

#### **Rinderpest**

An acute highly contagious disease principally of cattle ('cattle plague'). Characterised by high fever, nasal and ocular discharges, laboured breathing, severe often bloody diarrhoea and death. The virus is related to measles, canine distemper, and peste des petits ruminants. The virus is not stable in the environment.

Pigs can also be infected by eating meat from an infected animal.

#### **Scrapie**

Scrapie occurs in sheep and goats. Infection is usually passed from ewe to lamb and can occur between unrelated animals, especially when lambing occurs in confined areas. Scrapie has a prolonged incubation from 1–3 years or longer. Clinical signs of pruritus and incoordination progress to depression, recumbency and death. Animals that never develop clinical signs can still be a source of infection to others.

Product and co-product for rendering must be subjected to severe processing and used only for fertiliser.

**Sheep and goat pox**

Highly contagious skin diseases of small ruminants, characterised by fever, salivation, and pustules on exposed body surfaces, often with a high mortality rate. The virus is very resistant to inactivation in the environment, but the degree of host specificity does vary.

Meat product is unlikely to be a source of spread.

Some strains of *capripox virus* may cause very mild skin lesions in people.

**Swine vesicular disease**

Swine vesicular disease is caused by an enterovirus closely related to the human Coxsackievirus B5. It is characterised by fever and lameness due to vesicles and erosions on the feet. It is clinically indistinguishable from foot-and-mouth disease.

Product (including smallgoods and casings) and by-product from infected pigs remain infective for long periods, especially if the material is refrigerated.

The virus can survive for many months in contaminated buildings, vehicles and on pastures. It can survive in pig faeces for at least four months.

**Transmissible gastroenteritis**

An enteric virus disease of pigs, caused by a coronavirus that results in rapid dehydration, profuse diarrhoea and rapid death in piglets under three weeks of age.

Carcase material from pigs infected with TGE virus can represent a source of infection. Freezing of infective tissue does not significantly affect infectivity. Post-slaughter acidification does not affect the infectivity of TGE virus in pig products. Cooking will destroy the virus. The survival of TGE virus in salted and cured meats is unknown, however even during acute infections virus has been difficult to detect and carcase muscle tissue is not considered a major reservoir of virus.

**Vesicular exanthema**

An acute disease characterised by vesicles on the snout, in the mouth and on the feet. The clinical disease is indistinguishable from foot-and-mouth disease. The vesicular exanthema virus is very closely related to viruses isolated from marine animals and an outbreak in pigs was associated with the feeding of contaminated food scraps containing marine animal product.

**Vesicular stomatitis (VS)**

Vesicular stomatitis is principally a disease of cattle, horses, and pigs. It can cause signs indistinguishable from foot-and-mouth disease, except horses are infected. The disease has only been seen in North, Central and South America. The epidemiology of the disease is unclear, but transmission cycles between insects and small wild ruminants is known to occur.

People can become infected with VS virus clinically or subclinically. Meat products and by-products are thought to pose minimal risk of spread, even to humans.

Virus apparently survives no more than several days in premises that have housed infected animals, although experimentally the virus has been shown to survive longer at lower temperatures and in the presence of organic matter. Cleaning is more important than disinfection in the elimination of VS virus.

### 1.2.2 Diseases of minimal or no risk for transmission by meat or by-products

These diseases are of little consequence in the enterprise other than at the antemortem inspection. They are summarised briefly below. More information can be obtained from specific AUSVETPLAN **Disease Strategies** documents.

#### **Bluetongue**

Bluetongue is a viral disease of ruminants transmitted only by specific species of biting midges. Sheep are the most severely infected, the disease being characterised by inflammation of the mucous membranes, widespread haemorrhages and oedema. Naturally occurring disease has not been seen in Australia, although some serotypes of the virus have been detected in Northern Australia.

Those autopsying sheep should pay particular attention to the haemorrhagic lesions indicative of bluetongue infection.

#### **Equine Influenza**

Equine influenza is an acute respiratory disease of equines, which may cause rapidly spreading outbreaks among horses congregating together.

Separation between horses is the main precaution required. Work horses should be kept away from contact with horses on neighbouring properties. No horses from outside the premises should be brought in. Work horses should be stabled with as much separation between individuals as is practical. On establishments that slaughter solipeds, separation between lots and between horses on the premises and horses on neighbouring premises should be maintained. Vaccination of work horses may be appropriate.

#### **Japanese encephalitis**

Is a mosquito-borne viral disease of humans and animals and occurs throughout much of Asia causing encephalitis in humans in some cases. Adult pigs normally show no clinical signs but pregnant sows may abort or produce mummified foetuses, stillborn or weak piglets. In horses the clinical signs may vary from a mild transient fever to high fever, blindness, collapse and deaths ranging from 5% to as high as 30-40%.

The virus does not persist outside of infected animals and mosquitos and the production of domestic pig meat or game pig meat and their co-products does not pose any threat to humans as the virus is not transmitted by these products.

#### **Peste des petits ruminants (PPR)**

PPR in sheep and goats resembles rinderpest of cattle and is caused by a virus closely related to the virus of rinderpest. It is characterised by fever, enteritis, high morbidity and mortality.

The virus is rapidly inactivated in the carcase, but some reports suggest that it may persist in meat if immediately frozen after slaughter.

#### **Rabies**

Rabies is an almost invariably fatal viral encephalitis affecting all warm blooded animals. It has a long and variable incubation and is transmitted by the bite of a rabid animal. The main reservoir hosts include members of the *Canidae* (dogs, foxes).

If the presence of a rabid animal is suspected, human safety is paramount. Extreme care must be taken in dealing with suspect animals. Animals exhibiting any of the signs of possible rabies should not be handled and muzzling of suspect carnivores should not be attempted.

### **Screw-worm fly**

Myiasis caused by larvae of the screw worm fly is characterised by larvae feeding on **living** tissues in open wounds of any warm-blooded animal host, resulting in debility and some deaths. The flies prefer warm moist conditions and temperature ranges between 16°C–30°C.

Prophylactic treatment with appropriate insecticides should be carried out on working animals. The issue of insecticide residues in meat for human consumption means that the withholding period for insecticides applied to food animals must be observed. Only approved insecticides must be used on the establishment. Animals may need to be killed because of welfare considerations, or alternatively treated and held before slaughter.

### **1.2.3 Occupational health issues**

*Vesicular stomatitis* frequently occurs in humans, causing influenza-like symptoms, but it rarely produces vesicles.

*Screw-worm fly* myiasis may occur in any warm-blooded animal including humans if simple hygiene procedures and precautions are not observed.

*Foot-and-mouth disease* virus can be inhaled and trapped in the respiratory tract for 24 hours and may be carried by humans. Humans are not infected by eating meat.

*Rift Valley fever* can be contracted by inhalation of aerosols and by contact with infected blood. It is potentially lethal.

*Rabies* can be transmitted through skin abrasions and saliva from infected animals. Rabies is usually fatal unless vaccination is used.

*Capripox virus* has been reported as causing lesions such as small red papules and vesicles on the hands and arms in humans working with some strains of *capripox virus* in Sweden and India. No generalised disease has occurred.

*Bovine spongiform encephalopathy* is considered to be a zoonosis but studies have not yet confirmed this to be the case.

*Scrapie* is also considered to be a potential risk to humans but studies have failed to show any connection between scrapie and human dementia.

*Japanese encephalitis* can be transmitted from infected animals by mosquitos and contact with infected blood is not a risk.

### **1.2.4 AUSVETPLAN strategy and OIE export requirements for each disease**

Table 1 provides a concise summary of the proposed strategy in Australia if there is an outbreak of one of the diseases covered by AUSVETPLAN. More details are provided in the individual **Disease Strategies**. Some of the diseases are covered by a cost-sharing agreement whereby the Commonwealth and States/Territories share the eradication and compensation costs (see the AUSVETPLAN **Summary Document, Appendix 3**).

The Office International des Epizooties (OIE) is the world organisation for animal health. The OIE, established in 1924 in order to promote world animal health, provides guidelines and standards for health regulations in the international trade of animals and animal products. Diseases that spread rapidly, have particularly serious socioeconomic or public health consequences and are of major importance in international trade, have been designated by OIE as List A diseases. List B diseases are similar in importance to List A, but are considered less invasive across political borders, and to be ‘significant’ diseases only for international



trade considerations. The OIE International Animal Health Code for each disease is shown in the appropriate **Disease Strategy**. Tables 2 and 3 provide a summary, specifically relating to meat and by-products, taken from that summary.

**Table 1 OIE classification, cost-sharing agreement and eradication strategies for the AUSVETPLAN diseases.**

DISEASE	OIE	CSA	ERADICATION STRATEGY*						
African horse sickness	A		S				I	V	H
African swine fever	A	✓	S			D			
Aujeszky's disease	B			L		D		(V)	
Virulent avian influenza	A	✓	S			D			
Bluetongue	A	✓					I	V	H
Bovine spongiform encephalopathy	B				C				
Classical swine fever	A	✓	S			D		(V)	
Equine influenza	B					D		V	H
Foot-and-mouth disease	A	✓	S			D		(V)	
Japanese encephalitis	B							(V)	
Lumpy skin disease	A		S			D	I	(V)	
Newcastle disease	A	✓	S			D		(V)	
Peste des petits ruminants	A		S			D			
Rabies	B	✓			C			V	
Rift Valley fever	A						I	V	
Rinderpest	A	✓	S			D			
Scrapie	B				C				
Screw-worm fly	B	✓					I		H
Sheep and goat pox	A		S			D	I	(V)	
Swine vesicular disease	A	✓	S			D			
Transmissible gastroenteritis	B			L		D		(V)	
Vesicular exanthema		✓	S			D			
Vesicular stomatitis	A	✓		L		D	I		H

\* Quarantine and movement controls are part of all the eradication procedures

**KEY:**

OIE	List A or List B disease (Office International des Epizooties)
CSA	Cost-sharing agreement
S	Slaughter infected and at-risk animals to remove the major source of the virus
L	Eradication program including limited slaughter according to circumstances
C	Slaughter of clinically-affected or dangerously exposed animals
D	Decontamination essential to eliminate the presence of the virus on infected premises
I	Insect vector control
V	Vaccination of susceptible animals to prevent the disease
(V)	Vaccination may be considered
H	Husbandry, including treatment of affected animals that will assist the eradication program

**Table 2 OIE export requirements for diseases transmitted by meat or by-products**

<b>Disease</b>	<b>OIE incubation period</b>	<b>OIE country freedom rules since last case</b>	<b>OIE codes for export from infected country (for general guidance only)</b>
African horse sickness	40	Two years with no vaccination during the last year	
African swine fever	40	One year if stamping-out policy has been applied	Fresh meat or meat products must be from pigs raised in a free zone since birth and slaughtered at an abattoir located in a free zone; found to be healthy before and after slaughter.  Meat products processed to ensure destruction of the virus.
Aujeszky's disease	The OIE Code does not give a maximum incubation period		For fresh meat and meat products, entire consignment must be from animals slaughtered in an abattoir and found to be healthy before and after slaughter.
Bovine spongiform encephalopathy	measured in years		Specific antemortem inspection must be carried out on bovines over 18 months. Affected cattle are slaughtered and completely destroyed.
Sheep and goat pox	21	Six months if a stamping-out policy has been applied otherwise three years	Skins, fur, wool and hair must be from animals that have not been kept in an infected zone or have been processed in premises sufficient to ensure destruction of the virus.
Classical swine fever	40	One year if a stamping-out policy has been applied otherwise at least two years	For fresh pigmeat the pigs must not have been kept in an infected zone; the abattoir must not be in the infected zone and the pigs must not have been vaccinated with a live virus vaccine.  Meat products must be processed to destroy the CSF virus and necessary precautions must be taken to prevent recontamination.

Foot-and-mouth disease	14	Three months after the last case where stamping-out and serological surveillance are applied	The entire consignment of meat must come from animals slaughtered in an abattoir and be free from FMD before and after slaughter. Meat has been processed to ensure the destruction of FMD virus. Necessary precautions must be taken after processing to avoid contact of the meat products with any potential source of FMD virus, see <b>Appendix 3</b> of the <b>FMD Disease Strategy</b> for more detail.
Lumpy skin disease	28	3 years	Products must be processed to ensure the destruction of virus or, for raw hides, they must be stored for at least 40 days before shipment.
Peste des petits ruminants	21	Six months if a stamping out policy has been applied otherwise three years	For small ruminants and pigs certification is required indicating that products come from healthy animals slaughtered in an abattoir. Products must be processed to ensure destruction of the virus.
Rift Valley fever	30	3 years	
Rinderpest	21	Six months if a stamping out policy has been applied otherwise three years	For ruminants and pigs certification is required indicating that products come from animals kept out of the infected zone. Products must be processed to ensure destruction of the virus.
Swine vesicular disease	28	Nine months if a stamping out policy has been applied otherwise two years	For pigs certification is required indicating that products come from healthy animals slaughtered in an abattoir. Products must be processed to ensure destruction of the virus and precautions have been taken to avoid recontamination.
Transmissible gastroenteritis	40		Pigs for slaughter must show no clinical signs, and come from an establishment free of TGE during the 40 days before shipment to the abattoir.
Vesicular Exanthema	No OIE entry		
Vesicular stomatitis	21	No evidence of disease during the last two years	No requirements for meat or other animal products are specified.

**Table 3 OIE export requirements for diseases of minimal or no risk of transmission by meat or by-products**

Disease	OIE incubation period	OIE country freedom rules since last case	OIE codes for export from infected country (for general guidance only)
Bluetongue	40	No evidence of Bluetongue found during the previous 2 years	
Japanese encephalitis	21		No restrictions on meat and meat products or co-products of pigs or horses.
Screw-worm fly			No restrictions on dead tissue or animal products
Rabies	6 months	Considered free if no cases during the previous 2 years	

### 1.3 Animal species and/or product entering the enterprise

This manual is written with the major abattoir species of cattle, sheep and pigs in mind. However the principles contained in it can be applied to any species being killed and processed for human consumption. Similar principles apply to premises that receive animal product for further processing. These may originate from a wide range of areas and from a large number of individual farms.

The entry and exit of people, vehicles and equipment may also play a role in disease transmission.

### 1.4 Output of animals, product, by-products and discharges

#### 1.4.1 Risk of disease spread from infected animals entering the enterprise

In determining the disease risk of the different products, including by-products, the following issues should be kept in mind:

- the organism causing the infection must have the potential to be present and persist in the products concerned;
- the opportunity must be present for susceptible animals to come into contact with the products;
- the pathogen must be present in an adequate dose to initiate infection;

- infection must be able to occur from contact with products, eg:
  - ingestion of meat in African swine fever and classical swine fever;
  - ingestion of pasture contaminated with effluent containing the infective organism;
  - contact with skins as in capripox virus;
  - contact with personnel or things

Full details about the diseases can be found in their respective **Disease Strategies**.

The broad range of products deriving from the Meat processing enterprise are often used by or on grazing and other animals. Examples are animal proteins for feed to ruminants, casings for processing into catgut, and the use of animal products for biological materials. Table 4 illustrates the risks for some diseases.

**Table 4 Risk of disease spread to susceptible animals through products, by-products and discharges derived from infected animals which have entered the meat processing enterprise**

	Bone in meat	De-boned meat	Hides and skins	Offals (includes red and green)	Nervous tissue	Effluent, (yards, slaughter floor)	Meat-blood-and bone meal	Manure, paunch and visceral contents
African horse sickness	+	+	-	+	-	+	-	-
African swine fever	+++	+++	+	+++	-	++	-	+
Aujeszky's disease	++	++	-	++	-	+	-? <sup>1</sup>	+
Bluetongue	-	-	-	-	-	-	-	-
Bovine spongiform encephalopathy	? <sup>2</sup>	-	-	++	++	-	+	-
Capripox (sheep and goat pox)	-	-	+++	-	-	++	-	-
Classical swine fever (hog cholera)	+++	+++	-	+++	-	+	-	-
Equine influenza	-	-	-	-	-	+	-	-
Foot-and-mouth disease	+++	++	+	+++	-	+	-	-
Japanese encephalitis	-	-	-	-	-	-	-	-
Lumpy skin disease	-	-	+++	-	-	++	-	-
Peste des petits ruminants	+	+	-	+	-	+	-	+
Rabies	-	-	-	-	+	-	-	-
Rift Valley fever	-	-	-	-	-	+	-	-
Rinderpest	+	+	-	+	-	+	-	+
Scrapie	-	-	-	-	+	+	?	-
Screw worm fly	-	-	-	-	-	-	-	-
Swine vesicular disease	+++	+++	-	+++	-	++	-	-
TGE	+	+	-	+++	-	++	-	++
Vesicular exanthema	++	++	-	++	-	+	-	+
Vesicular stomatitis	-	-	-	-	-	+	-	-

1 only if viraemic at time of slaughter

2 could possibly be involved in spread if contained lymph node material

+ means definite risk

- means no known risk

## **2 RISK REDUCTION AND CONTINGENCY PLANNING**

Contingency planning is necessary in the event of an emergency disease and has other benefits that may occur in the event of other emergency situations such as a chemical residue incident. Forward planning to be able to adequately cope with a disease affecting an establishment will provide a more organised and rapid response to the situation and a more rapid return to normal commercial production.

### **2.1 Design of the enterprise**

The correct layout and organised movements of products and the separation of 'dirty' from 'clean' areas will result in better control of all products and personnel in the event of a disease outbreak.

Areas where live animals are assembled must be kept as isolated as possible from slaughtering and processing areas as live animals will be the major source of infection and risk to other products and personnel. The areas must be separately drained. If possible livestock entrances should be separate from entrances to other areas of the establishment and away from the main buildings.

Personnel working in highly infective areas must be separated from personnel in processing areas during working periods.

Highly contaminated areas such as slaughter floors, hide and skin sheds, by-product areas must be closed off from edible product processing areas.

The various sections must be designed so that product movements should not have to pass unnecessarily through a section enroute to another section.

All meat processing enterprises must be made of materials that enable easy and thorough cleaning and disinfection, and proper maintenance to be implemented.

All drainage from the establishment must be able to be contained and treated if necessary. Drainage from dirty areas must not pass through or near clean areas.

### **2.2 Procedures for early detection of disease**

Personnel associated with livestock must be especially targeted for training and to be observant when handling stock for any unusual disease signs. When sick animals are observed they must be isolated and reported to the establishment veterinary officer, senior meat inspector or district veterinary officer. Details of the lot, including the owner or their place of origin, and the number involved must be recorded. Details of the transport must be documented. Permits or documentation accompanying stock should be accurately filed.

Veterinary officers must be aware of the possibility of disease and the strategies that have been developed. The veterinary officers must maintain regular contact with State veterinary officials. If a disease condition is suggestive of an emergency disease they must be aware of the actions to be implemented as soon as possible.

## 2.3 Training of staff

The training of staff for handling an emergency disease situation will result in a better organised response and possible earlier return to normal functions.

Livestock staff require training in observation and the ability to recognise abnormalities in animals but not necessarily to a level of recognition of emergency diseases. Early recognition of the abnormal with rapid reporting should be emphasised. With companies taking more responsibility for ante and post-mortem activities it is even more important that these company personnel must be properly trained and certified in these duties and are subject to regular audit.

All staff should be provided with adequate background in the methods of transmission of disease and products and things that may be involved. Poor personal hygiene and practices are likely to lead to transmission and proper procedures need to be implemented to reduce spread. Staff should not get involved unless particularly directed to do so and must follow closely the directions of the disease control authorities. Staff will need to be trained in what is expected of them in an emergency, what they must do and where they must assemble.

If possible, a simulated exercise of handling an emergency disease outbreak at a meatworks should be undertaken periodically and a video made of the procedures. The training module for Risk Enterprises/Slaughtering Establishments would be the basis for the exercise and the video would serve as a useful tool for training works staff.

Management must be trained to a high level of readiness in containment, cleaning and disinfection procedures so that they may assist in supervision of decontamination and staff and product control. Management must prepare job cards that are appropriate to the person's training to enable an organised approach in the event of an emergency disease incident. The consequences of an emergency disease discovery should be discussed with key union officials so that there is a general awareness of actions required.

## 2.4 Work procedures and staff hygiene

The establishment of good work procedures and staff hygiene will assist in the containment of spread of contamination of products. Staff need to be made aware of the limit of their movement outside of their immediate work areas and the proper cleaning of hands on a regular basis and personal hygiene practices to prevent introduction and spread within and out of work areas.

The use of clean clothing for work and the retention of clothing and boots on the premises each day will reduce spread of disease.

## 2.5 Movement conditions review

The establishment of a system to completely separate animals from processing areas and prevent people unnecessarily moving between different operations must be implemented. Staff movements around the establishment must be restricted to an 'as needs basis' and only following the implementation of any personal hygiene procedures to prevent spread of contamination.

Livestock should enter through different entrances, if possible, from personnel and vehicles used for handling the finished product. Documentation of farm of origin and movements of



the animals must be implemented. Documents accompanying the animals must be accurately filed. Details of vehicles carrying livestock must be recorded together with times of entry to the establishment.

The origin, destination, quantities and types of product entering and leaving the establishment must be documented. The storage place and intended further use of product must be recorded. Documentation must be able to provide an audit trail by which product can be traced from the live animal through to storage place, destination and end-use of final product.

Vehicles must not be used for carrying product into or out of the establishment unless they have been adequately cleaned; their movement must be restricted until their cleanliness is satisfactory.

## **2.6 Internal quarantine**

Suspect animals will be isolated in a sick/suspect pen for initial veterinary examination. If animals are sick they must be removed from the animal holding yards, isolated and treated or disposed of in an acceptable manner.

If possible, animals from different groups should be kept separate until the time of movement to the knocking box.

Animal holding pens should be cleaned at regular intervals and maintained in an acceptably clean state.

## **2.7 Veterinary services**

The establishment veterinarian or senior officer will be responsible for general oversight and ensuring animals being presented for slaughter are healthy. This officer can also be a source of information and assist in the training of staff in aspects of handling an emergency disease situation.

The establishment should contract private veterinary services for the supervision of animals held on the establishment other than animals for slaughter, eg dogs, horses.

The State veterinary authorities must be contacted in the event of suspicion or confirmation of an emergency disease incident.

## **2.8 Disposal methods**

Many meat processing establishments have a rendering plant on the premises and this can be useful in the disposal of animals and products during an emergency disease outbreak. Not all rendering plants will be suitable for the destruction of some pathogens, see Appendix 4. It will be necessary to identify a site, preferably on the property, that is suitable for the burning or burial of carcasses and products if this becomes necessary.

A burial site must be situated so that leaching of fluids to other areas or into water sources does not occur. The site must have easy access for vehicles and the terrain and soil suitable for the digging of trenches.

It may be possible to combine the rendering plant and burial/burning disposal methods as the rendering time may be extended to accommodate the destruction of a wider range of pathogens.

Wastewater disposal methods need to be documented and, if possible, the wastewater should be able to be retained for treatment, if necessary. It may be possible to direct wastewater to an area that can be kept free from stock for a lengthy period and will not allow leaching or drainage off the area.

## **2.9 Records**

The maintenance of good records on animals and products received onto and removed from the establishment to enable reliable tracing, may allow a quantity of product to be saved from destruction.

The identification of product with its farm(s) of origin will enable quick and reliable tracing and the separation of possibly contaminated product from disease-free product for salvage. This requires the development of a recording system that commences from the time a vehicle enters the establishment with animals, through slaughter, processing and storage to the time it is removed from the premises.

It is important that vehicle movements are recorded for forward tracing purposes.

A record of staff interests (in animals) outside of the establishment should be maintained, if possible, to enable those personnel, likely to be a risk in spreading infection to other animals, to be quickly identified for special advice and restriction.

## **2.10 Water supply arrangements**

Details of the water supply regarding its origin, storage, treatment method and quantities available should be documented.

## **2.11 Wildlife/feral animal control**

The wildlife/feral animal situation on an establishment should be investigated and documented to enable the veterinary authorities to make an informed decision on whether control of these animals will be necessary in the event of an emergency disease.

The establishment should establish a level of control as normal operational practice to ensure wildlife/feral animals are kept at manageable levels to reduce the possible spread of infection during a disease emergency.

## **2.12 Media and public relations**

Management should nominate and train a suitable person to handle any media enquiries during a disease incident. An emergency disease associated with any enterprise could have a major effect on acceptance of the product during and following the eradication/control program.

## 3 RESPONSE PLANS IN A DECLARED AREA

### 3.1 Introduction

This section addresses the situation where a meat processing establishment or knackery/pet food establishment, although not having any clinical or suspected cases of disease itself, is within either a restricted area or a control area, due to an outbreak on another property.

#### 3.1.1 Declared areas

The term *declared area* is used to cover both *restricted* and *control areas*. These are defined below but it should be noted that the definitions may vary in particular situations or such areas may not necessarily be declared for specific diseases.

A *restricted area* (RA) is a relatively small area around an infected premises that is subject to intense surveillance and movement controls. Movement out of the area will in general be prohibited, while movement into the restricted area would only be by permit. Movement into the RA of significant numbers of susceptible species is unlikely to be permitted. Multiple *restricted areas* may exist within one *control area* (CA). Guidelines for establishing restricted areas are provided in each **Disease Strategy, Appendix 1** and the OIE Animal Health Code.

A CA will be a buffer between the RA and areas free from disease where restrictions will reduce the chance of the disease spreading further afield. The CA should reduce in size as confidence about the extent of the outbreak becomes clearer. In principle, animals and specified product will only be able to be moved out of the CA into the free area by permit.

The controls gazetted by the State/Territory authority should be obtained from the local disease control centre (LDCC). **A copy of this gazettal and relevant permit forms is to be supplied to premises management and copies are to be posted at suitable points on the premises for the information of staff.**

#### 3.1.2 Local disease control centre

In the event of an outbreak of emergency disease, each State or Territory is responsible for its own disease control activities **under the direction of the State/Territory CVO**. An LDCC will be established and will be responsible for all activities within the declared area, including disease investigation, collection of specimens, quarantine of properties, valuation, slaughtering and disposal of livestock, and decontamination of properties.

The plant veterinarian must establish early contact with the relevant contact person in the LDCC and be aware of the requirements of the LDCC and to follow directives as necessary. The veterinarian may also be an important source of information and advice to the LDCC.

### 3.2 Can the enterprise continue to operate if in a declared area?

Within a declared area the resumption or continued operation of an abattoir will be at the discretion of the State disease control authorities. There is likely to be no permitted movements of susceptible livestock in the short term, but these restrictions are likely to ease (or intensify) as the disease situation is clarified. It will in part depend upon the success of

quarantine and movement controls successfully preventing the spread of disease. Slaughter of selected animals may be permitted under supervision depending on the disease.

These enterprises may be permitted to operate after consideration as to whether they have adequate<sup>2</sup>:

- security measures for animals, people, product and things;
- rendering facilities;
- laundering facilities;
- effluent control facilities;
- stock truck washing facilities;
- paved lairages;
- supplies of hot and cold water and disinfectant.

Routine commercial operations may also be affected by:

- slaughtering capacity being directed to depopulate high risk properties;
- disease restrictions for export requirements not being satisfied;
- marketing being restricted to the defined CA only;
- sourcing of stock for slaughter being difficult, given that saleyards may not be operating and buyers would not be encouraged to visit farms;
- some staff who have contact with susceptible animals may not be able to attend work; and the establishment may be situated in an area of high livestock density.

### **3.3 Minimisation of risks associated with operation**

Management has responsibility for ensuring the provision of sufficient personnel to control the entry of animals, people and things onto the premises. Dependent upon the size of the operation, two entry/exit points should be established, one for livestock and another for personnel, stores, equipment and outgoing product. This is to reduce congestion of movement at the entry points and the risk of cross-contamination. They should be clearly signposted and strictly policed to maintain separation.

#### **3.3.1 Live animals**

The principle of separation and movement control should be applied to livestock and work animals at meat processing establishments. Livestock for slaughter should not be held for long periods. The 'just in time' principle of raw material supply should be used so that the smallest practicable number of livestock are held on the establishment. Accurate records of arrival time, number and type of livestock, place housed and time slaughtered should be kept.

Only one point of entry for livestock onto the premises should be provided. All stock must be accompanied by a permit issued by the LDCC. No vehicle with animals should be allowed onto the premises unless a valid permit is presented by the driver. If a permit is not available then the LDCC should be notified immediately and the vehicle detained in a safe area until instructions on further action have been obtained. Dogs or horses with works employees

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<sup>2</sup> Adequate is taken to mean for the purposes of preventing the spread of the disease should it be subsequently introduced

should only be allowed entry if directly involved with that employee's duties, and is dependent on the actual disease (see paragraph below).

An entry procedure appropriate for the disease should be established. See the **Decontamination Manual, Section 4.1** and the relevant AUSVETPLAN **Disease Strategy** for details. Trucks should be cleansed and disinfected immediately after unloading. Any dog carried on a truck must be kept restrained at all times.

Live animals should be kept securely within the boundaries of the establishment and movement between paddocks, pens or other defined areas should be kept strictly controlled and minimised. Close contact between animals within the boundaries of the establishment and those on neighbouring properties should be eliminated by physical separation and distance.

Animals within the establishment should not be fed any contaminated materials and should be prevented from coming into contact with effluent or by-products from the processing at the establishment.

Regular and thorough veterinary observation of the animals must be conducted to detect any occurrence of the disease.

#### **Introduction of animals for slaughter**

Animals may be admitted for slaughter into an establishment situated in an RA or a CA under permit and subject to the following conditions.

- Only animals from a herd showing no clinical signs are to be admitted, and normally only after the incubation period has elapsed:
  - subject to a veterinary examination including the whole herd of origin and immediately before travel with appropriate documentation detailing time of examination and descriptions;
  - all animals must be individually identified eg by tail tags with serial numbers or ear tags and tattoos, or as determined by an authorised officer and undergo a physical examination appropriate to the disease. In the case of a vesicular disease, this would include recording of temperature and examination of the tongue, mouth, feet, udder and teats.
- Slaughtering establishments should have a rendering plant.
- Transport vehicles must be certified to have been cleaned and disinfected (see the **Decontamination Manual, Section 6.2**) immediately before they enter the farm of origin and after they are unloaded at the abattoir.
- Wheels and undercarriage must be certified to have been cleaned immediately before leaving the farm.
- Livestock trucks must travel under seal or be accompanied by a government officer.
- Animals must be placed in paved lairages either the night before or on the day of slaughter.
- Animals in the lairages must be completely killed out each day.
- Emptied yards must be disinfected on a daily basis after kill.
- In-contact animals should be killed last of the day (as suspects).

- Establishments, in association with the veterinary authorities, will need to make arrangements for veterinary inspection services to be provided as follows:
  - veterinary antemortem examination to be carried out both on arrival and immediately before slaughter with particular emphasis on looking for clinical signs of the disease in question; and
  - postmortem examination to be carried out with particular emphasis on the postmortem signs of the disease in question.
- Animal identification must be maintained so that a kill sheet is prepared indicating property of origin and the identity of each carcass is to be maintained throughout the process.
- Slaughter should be carried out in property of origin lots.
- Cleaning and sanitising to be performed daily with extra disinfection as appropriate to the disease.
- Control should be strictly maintained on working animals - such as dogs and horses - feral animals, rodents and insects.
- Effluent must be controlled, and, depending on the disease;
  - must not be sprayed on to paddocks or pastures; and
  - must be disinfected before release (see the **Decontamination Manual**).
- Animals on the farm of origin will be monitored for a number of days after the slaughter animals have departed from the farm (refer to incubation periods):
  - product would not be released until the surveillance period had elapsed; and
  - if disease appears on the farm during this period carcasses and their parts from that origin would be condemned and disposed of by burning, burying, rendering or as appropriate.
- In the case of some diseases extra considerations are required, for example, in the case of foot-and-mouth disease, carcasses would have to hang for a minimum of 24 hours at 2°C and achieve a pH of less than 6.
- If for a disease, animals may be slaughtered (see Table 1), only slaughterers, stock handlers, inspectors and veterinarians with no outside contact with susceptible stock should be employed on this job.
- After boning, cuts of meat must be sold in the chilled, cured (to specifications that would destroy the disease agent) or cooked form, as appropriate to the disease in question.
- Any meat that was frozen must be held under security for a judgement on its disposition. This may result in further processing such as cooking. A system of seals/locks, documentation and inventory control would be required to be in place to ensure this can be achieved.
- Workers must undergo an appropriate decontamination procedure at the end of the day's operation.
- The establishment will be subjected to thorough cleaning and disinfection.

### 3.3.2 Animal products

Entry of animal product will be subject to similar controls to live animals, with vehicles undergoing a disinfection procedure appropriate to the disease outbreak. Movement within the declared area will be subject to approval, consistent with the disease strategy and within OIE guidelines. Entry and unloading shall only be permitted upon presentation of a valid permit. Details for each disease can be found in the appropriate **Disease Strategy, Appendix 2** and the OIE Code.

Control of inventory is essential. Records should be maintained detailing what is produced, date and batch of production, place and manner of storage, and destination upon leaving the premises. Abattoirs should have an effective system to identify the origin of a batch of product. Product should be stored securely to prevent pilfering, intentional tampering and/or unauthorised contact by humans, vermin or other animals.

Carcases and their parts should only be introduced for further processing from abattoirs that have satisfied all the conditions in Section 3.3.1.

Other conditions to be met dependent on the disease agent involved may include:

- carcasses to be introduced in chilled condition and not frozen;
- during boning all bones and trimmings to be controlled to ensure all lymphatic tissue has been removed; and rendering occurs at the required temperature and other parameters (see below); this may involve transfer to a rendering plant under security and rendering under supervision;
- an identification system be in place to correlate all product back to farms of origin, to ensure that all product will not have to be condemned if disease occurs on one of the properties from which the animals in the processing plant have been sourced;
- product to be sold in chilled, or cooked forms;
- boneless frozen meat shall be processed by a means that would inactivate any disease agent that may be present and the plastic wrapping and/or cardboard boxes used for frozen meat to be disposed of by burning or burying;
- workers should have no outside contact with susceptible animals;
- workers to undergo an appropriate decontamination procedure after the finish of the day's operation.

All goods produced by the enterprise within the incubation period of the disease before declaration of the disease should be considered as a priority for tracing. If possible, product produced during the critical period should be identified and separated from other product. Immediate measures should be taken to identify these goods and protect them from the risk of possible contact with the disease agent, for example, protection against FMD aerosol spread might include fully packaging and overwrapping of pallets. No attempt should be made to transport any goods without first contacting the LDCC and, in the case of potential exports, the Australian Quarantine and Inspection Service (AQIS), to obtain the necessary permits.

### 3.3.3 Treatment of product

#### Chemicals

Chemicals used as preservatives in meat, while they may inhibit or kill spoilage organisms, cannot be relied upon to kill pathogens associated with an emergency disease. It has been

documented (Savi et al 1962) that foot-and-mouth disease virus for instance, will not survive in certain types of sausage but this can not be regarded as a dependable method of decontamination. Other chemicals such as caustic soda, while used for decontaminating work surfaces, for example, are not suitable for decontaminating edible product and are not effective for inedible product.

### **Irradiation**

Irradiation as a method for decontamination of product is effective but is not a viable option as there are no plants with the facilities available to carry out a large scale operation. In addition there is consumer resistance to the use of irradiation for edible product.

### **Heat treatment**

The treatment of product by heat is effective in destroying some pathogens. The reliability of the method to effectively heat all parts to the required temperature/time parameters raises concerns and the temperature/time involved for many pathogens may affect the product for sale as an edible item.

## **3.3.4 Animal by-products**

### **Rendering of meatmeal**

Very few rendering plants in Australia now have the capability to render to the European Union (EU) standard regime (System A-Appendix 4), ie 'high risk' material must be heated to a core temperature of at least 133°C for 20 minutes at a pressure of 3 bar (absolute).

Vegetative organisms are killed by much less severe time/temperature regimes. The pressure phase of the above regime must be carried out early in the process while there is adequate water present as, during the later stages of evaporation, the lipids have been shown to protect spore-forming bacteria and allow them to survive.

The EU will accept other heat treatment systems provided that product sampled daily over a trial period of one month is free from heat-resistant pathogenic bacterial spores (*Clostridium perfringens* absent in 1g). Routine samples of meatmeal taken during or on withdrawal from storage must be free from *Salmonella* in 25g and the number of *Enterobacteriaceae* must not exceed 300 in any one of 5 subsamples; 2 subsamples may have counts up to 300 provided the other 3 do not exceed 10 organisms.

The New Zealand Ministry of Agriculture and Fisheries (NZMAF) has undertaken mathematical modelling and testing of seeded samples in wet rendering operations and has confirmed that final drying of the fractions from continuous wet rendering operations (System D-Appendix 4) in the FLO-DRIER® is equivalent in sterilisation to the EU standard regime. This is a rotary kiln type drier. The AKT® direct fired drier should produce equivalent microbiological results as the meal particles are similarly exposed to short duration high temperatures (400°C).

All other systems of continuous wet rendering, utilising cooker type driers where the evaporation of residual water prevents the meal from reaching temperatures in excess of 130°C, may not destroy all spore forming bacteria unless the drying process is continued past the point where commercial meat meal would be produced. Product from such a process may have only fertiliser value as the nutritional composition is very much reduced. The temperature of this material could be expected to approach that of the jacket steam (160°C).

In batch and continuous dry rendering systems (Systems B & C-Appendix 4) the fat is removed by centrifugation (extractors) or pressing (expellers). This must be carried out with



the correct amount of residual water in the charge or fat removal is impaired or impossible. For a satisfactory sterilisation of all spore formers by dry rendering without a pressure cooking phase, it may be necessary to carry out the normal rendering process to extract the fat followed by recycling the solids back through the cooker to complete sterilisation.

The rendering systems and time/temperature/pressure regimes that are required to destroy the pathogens for various diseases and actions to be taken are outlined in Appendix 4.

### **Hides and skins**

Hides and skins may transmit certain pathogens, eg lumpy skin disease, sheep and goat pox.

### **3.3.5 Discharges (effluent)**

Unintentional emissions should be identified and controlled as quickly as possible. Discharges should be classified according to their potential for spreading infection of the disease and control plans made accordingly, taking into account prevailing environmental conditions. The aim being to prevent susceptible animals from becoming exposed to contaminated effluent.

### **3.3.6 Vehicles**

Vehicles entering the premises should not come into contact with animals already on the premises. Vehicles should not have to be driven through any potentially infective discharges, otherwise they must be cleaned and disinfected according to the requirements for the particular disease before being allowed to leave the premises (see the **Decontamination Manual, Section 4.3**).

### **3.3.7 Equipment and materials**

Stores may be either inanimate, such as disinfectants, packaging materials, petrol and oils, equipment etc or may contain animal material such as canteen supplies. The former will require minimal control provided that it is new material and correctly packed. Vehicles carrying these supplies must undergo the established entry procedure preferably through an entry point separate from livestock carriers. Management should ensure that deliveries are received directly from wholesalers and not via farm deliveries as could occur with fuel.

Materials and equipment must be kept secure from unauthorised use, pilfering and unauthorised contact with persons or animals.

Equipment or materials should not leave the premises without having been decontaminated in the manner appropriate for the disease.

Animal feed stuffs required by the abattoir must be sourced from a certified clean area.

Canteen supplies should also be from wholesalers in packaged product to avoid direct farm to premises contact.

### **3.3.8 Personnel**

Personnel, through management, should be kept informed of the nature of the disease, its risks to them and to the animal population, the need for changed practices and security, the role they have to play in preventing the spread of the disease and the practical details of what they have to do.

All persons on the premises should be supplied daily with clean work clothing, head gear and rubber or plastic boots. These should be worn while on the premises. A secure area for

personal equipment such as knives, steels and scabbards should be provided so that they are not taken home each day where this is the practice.

Non-essential movement between work sections should be avoided. Tasks and movement should be allocated on a 'need to do' basis. Only those who need to be in an area or who need to do a particular task should be in that area or performing that task. 'Clean' and 'dirty' (ie potentially infective) areas will be established with controlled perimeters and differing restrictions on personnel movement.

The likelihood of contact between personnel and susceptible animals outside the premises must be determined and alterations to their circumstances considered. Dogs or horses belonging to stockmen will have to be dealt with on an individual basis dependent upon the risk they pose through contact with stock outside the premises. It may be necessary in some cases to provide kennelling or stabling on-site.

### **3.3.9 Visitors and service personnel**

Only persons having bona fide business on the premises should be allowed entry. Arrangements for escorting visitors should be instituted to ensure that they only enter those areas relevant to them and that they undergo suitable disinfection on leaving that area. Conditions of entry should be explained to them and name tags identifying them should be supplied at the point of entry. Only essential equipment should be taken onto the premises so as to minimise the disinfection requirements on exit.

### **3.3.10 Vermin and feral animals**

The control of vermin and feral animals must be upgraded where relevant. Any possible sheltering or breeding areas for vermin should be eliminated by keeping long grass mown. Proper storage, disposing of garbage and appropriate pest control measures should already be in place.

### **3.3.11 Buildings and structures**

Buildings and structures will need to be able to be cleaned and disinfected appropriate to the disease threat. Where high protein and fat content of meat products is involved, and for certain types of operation, special cleaning techniques will be required before disinfection is applied.

Yards and pens will be grossly contaminated with faeces and soil. This will need to be collected as effluent or solid waste and subjected to treatment (see the **Decontamination Manual, Section 5.1**).

Approval to continue to operate in a declared area may be dependent on the ability and capability to clean the establishment.

## 4. RESPONSE PLANS IN AN INFECTED OR DANGEROUS CONTACT PREMISES

### 4.1 Introduction

This section addresses the situation where a meat processing establishment or knackery/pet food establishment contains infected animals or product from a dangerous contact premises and is within a declared area (see Section 3.1).

Declared premises proclaimed in the event of an outbreak of an emergency disease by the State/Territory CVO under the relevant State diseases legislation, are described below.

*Infected premises (IP)*: defined as the area (which may be all or part of a property) in which an emergency disease exists, is believed to exist, or in which the infective agent of that disease exists or is believed to exist.

*Dangerous contact premises (DCP)*: defined as premises containing animals showing no clinical signs of disease but which, by reason of its probable exposure to disease, will be subjected to disease control measures.

*Suspect premises (SP)*: defined as an area containing animals that have possibly been exposed to an emergency disease through possible contact with infected animals or facilities, people, equipment, semen or embryos, and currently show no symptoms; or where the disease symptoms are evident, but the diagnosis is as yet to be confirmed.

The declaration by the CVO of an IP, DCP or SP is determined by the AUSVETPLAN **Disease Strategies** in order to minimise the spread of disease.

The response will vary according to the particular disease. The descriptions below relate to an outbreak of a highly contagious disease, such as foot-and-mouth disease, that would require complete decontamination of a premises. For other diseases that are not transmitted by indirect contact, the implications would be less severe.

### 4.2 Can the enterprise continue to operate if declared infected?

An establishment may be deemed infected if:

- diseased animals are found in the lairage;
- lesions are recognised in slaughtered animals; or
- trace-back or trace-forward procedures show the establishment contains animals or product from an infected premises.

State/Territory authorities must be contacted immediately an emergency disease is suspected. The State CVO will take charge of eradication operations.

The premises will be quarantined, with restrictions being imposed on the movement onto or off the premises of all susceptible animals, livestock products and things.

### 4.3 Elimination of the agent

The aim of an eradication program is to:

- stop production of the disease agent

- prevent spread
- decontaminate to destroy the agent.

#### 4.3.1 Stamping out/destruction of animals

Decisions will be made by the regulatory authorities, usually in accordance with the AUSVETPLAN strategy for that disease. Infected or dangerous contact animals will generally be subjected to destruction and disposed of by burning or burying. Under certain circumstances rendering may be an option and the resulting product may be permitted for sale as fertiliser. If, because of the location of the enterprise, it is inappropriate to burn or bury, carcasses may be taken to an alternative site providing the site or route does not pose a risk to susceptible animals, and decontamination of the vehicles and personnel occurs. Also, personnel involved must not come into contact with any animals susceptible to the disease in question.

#### 4.3.2 Can any animals/product be salvaged?

Product obtained from animals during the critical period should be destroyed unless:

- the AUSVETPLAN strategy for the disease states that the animal product is not a risk;
- the system of livestock and product identification is such that product can be traced to property of origin (and the property established free of disease);
- the processing method is approved as one that will destroy the infectious agent; or
- epidemiological investigations indicate that the animals were not infected, ie were not from an infected premises or could not have been infected by diseased animal(s).

Product from non-infected animals may be permitted to be salvaged:

- by heat treatment for sale in a cooked form; and
- if the inventory control is such that product can be traced to animals that are not infected.

Depending on the disease all hides, skins, wool, horns, hoofs etc may have to be burned or buried. Hides from dangerous contact (and other designated) premises, assuming their identity can be verified by records and they have not been in contact with hides from infected premises, may be placed in an approved soak or moved under supervision to a tannery for supervised processing. An approved treatment in the United States is a 1 to 10 000 solution of sodium-bifluoride at an initial pH of 3.8. Hides must be soaked for 24 hours. The solution shall not exceed pH 5 during this 24 hours.

## 4.4 Decontamination

In general the principles and methods used would be the same as those routinely applied in meat processing establishments (including fogging). The main concern is to ensure that chemicals used are appropriate for the disease agent and that they comply with the *Instrument of Approval* for use in an abattoir if the establishment is permitted to remain operational.

Clean-down procedures for knackereries, game meat and pet food establishments must be undertaken to the same standards as are applicable to any other meat processing establishment.

Although procedures will vary according to the disease involved they will include:

- a thorough clean-down ensuring that all effluent and effluent discharges are treated or appropriately handled before being discharged into the environment;

- a decontamination program, ensuring that all organic material is removed;
- all product is treated or removed; and
- if necessary a plan for the use of sentinel animals.

Each plant should have its own contingency plan. If emergency disease does occur, the decontamination program should be determined after close consultation between the AQIS on-plant veterinarian (or equivalent) and the LDCC controller (or delegate).

#### **4.4.1 Livestock**

Depending on the disease, slaughter and disposal of all livestock on the establishment may be required. Repopulation may be delayed pending appropriate decontamination and approval. Repopulation with sentinel animals may be required before resumption of normal production to assess the effectiveness of the decontamination procedures.

#### **4.4.2 Products and by-products**

Destruction and disposal or treatment of the product should occur according to the specific AUSVETPLAN **Disease Strategy**.

#### **4.4.3 By-products**

Skins, hides, hoofs, horns, animal protein and other by-products will be handled in a manner appropriate to the particular disease strategy document. This may involve disposal, treatment, separation and isolation for a period, or no restrictions whatsoever.

#### **4.4.4 Discharges**

As a means of reducing water usage and helping to prevent escape of liquid effluent, it is recommended that an initial cleaning procedure (scraping away organic material) be used followed by cleaning with water and decontamination of the site and disinfection, plus treatment and disposal of the dry material.

Depending on the disease, the effluent may have to be contained and treated before being discharged normally or discharged with a guarantee that it will not come into contact with susceptible animals.

#### **4.4.5 Vehicles**

Vehicles should not be driven through any discharges from the lairages or processing premises.

Vehicles should be cleaned and disinfected according to the requirements for the particular disease before being allowed to leave the premises. In general, service vehicles that do not come in contact with infected/suspect areas should only require cleaning of wheels and a drive-through wheel wash may be suitable.

Any vehicle carrying livestock or animal product will require complete cleaning and disinfection.

#### **4.4.6 Equipment and materials**

Equipment and materials that may come into contact with infected animals, products, by-products or discharges should be handled according to the specific AUSVETPLAN **Disease Strategy**.

The type of industry, the type of product and the degree of hot water use means that equipment and materials may be highly contaminated with protein and fat. Great care is required to ensure an acceptable level of cleanliness will be attained.

#### **4.4.7 Personnel**

A short information sheet, written in simple language, should be provided to personnel detailing actions required of them during the disease outbreak. This may be reinforced by conducting a general meeting and discussion where a relevant emergency disease video is shown to personnel and questions answered by senior member(s) of the LDCC and the establishment veterinarian if one is present. Additional training and supervision may be necessary.

*Clean* (ie unlikely to be infected) and *dirty* (ie potentially or actually infected) areas will need to be established with controlled perimeters and differing restrictions on personnel movement.

Personnel must wash and change into clean clothing before leaving the premises and dirty clothing must remain on the premises.

All persons associated with the investigation of the disease situation must take all necessary decontamination precautions before leaving the premises.

#### **4.4.8 Vermin and feral animals**

Vermin and feral animal control is important in a normal operational sense for meat processing enterprises and is particularly important in the control of many emergency diseases. A number of diseases may be transmitted by vermin and the strategies documents should be examined to determine the importance of vermin for a particular disease.

Feral animals, which are susceptible to a particular disease, may play a role in spreading the disease from a meat processing enterprise to outside sources if they are able to gain access to waste materials, live animals, discharges and product.

If controls are not already in place a program will need to be developed to ensure that vermin and feral animal control is a part of the establishment operations, and is effective.

#### **4.4.9 Buildings and structures**

Permission to continue to operate a meat processing enterprise after being declared an infected premises will depend largely on the type of building structures, yards and storage areas that are in place, especially with respect to the ability to effectively clean and disinfect the establishment. The type of enterprise and products handled may make cleaning difficult and tedious. In that case, greater attention is required.

### **4.5 Other precautions**

The management of an enterprise that has been declared as infected or a dangerous contact premises will need to take additional measures and institute stricter supervision and record keeping, if the enterprise is to be permitted to operate. The enterprise and establishment contingency plans must be available and familiar to staff and must be able to safely direct the activities of the employees to prevent further spread of disease.

## 4.6 Tracing requirements

### 4.6.1 Livestock/stock

All stock entering abattoirs for slaughter should be identifiable to property of origin through tail tags, ear tags or some form of identification with documentation required by State/Territory authorities.

The veterinary officer will examine the affected animals and documents to determine which lots are at risk. Records should be made of all tail tags, ear tags or other identification on the animals at the time. Any documents such as declarations, way bills or the like should be examined to obtain names of owners, carriers (vehicle registration numbers), agents and routes of travel. This information should be provided to State/Territory authorities who will use it for tracing stock to property of origin (through ANEMIS) and to identify possible contacts.

Other issues to be considered are:

- infected animals, alive and dead (including dead in yards);
- in-contact animals on the premises;
- in contact animals on neighbouring properties;
- horses and dogs belonging to stock handlers;
- animals off premises including pets owned by people in direct contact;
- animals off premises including pets owned by people not in direct contact;
- any animals that may have transited the premises to another destination;
- property of origin of disease (determined by epidemiological investigation, eg age of lesions).

### 4.6.2 Trace-back before receipt

Documentation covering arrival of stock should comply with State requirements and be retained by management in a system that allows correlation of stock with product batches.

The receipt system at the abattoir should be implemented so that the information demonstrated in Appendix 5 is recoverable.

Tracing systems available in two States are provided in Appendix 5.

### 4.6.3 Tracing product

It will be necessary to trace product in chillers or freezers if trace-back revealed the possibility of there being product present that is infective or potentially contaminated with the disease agent.

Products that need to be considered for tracing purposes include:

- meat (chilled, frozen, bone-in, boneless)
- offal
- processed and cooked products
- canned product
- petfood
- pharmaceuticals
- blood
- hides
- tail pieces
- horns
- tallow
- meat meal
- paunch screenings, manure and fertilisers
- bile
- gall stones
- foetal blood
- slink skins
- bones and fat sent off the premises for rendering
- biological specimens for schools and universities
- casings
- calf vells
- souvenirs such as ear tags
- scrotums for lining stubby holders
- used wrappers and cartons

The product must be traced to:

- storage establishments/container terminals
- further processing establishments
- retail outlets
- exporting vessels
- overseas countries
- local butcher shops, plus homes where staff may have purchased directly from plant involved

In some abattoirs cartoned product can be correlated with the kill sheet. Meat transfer certificates (MTCs), notices of intention and health certificates and certification covering inedible product will be used for the tracing of product and the notification of overseas countries that import Australian products. This task will be made easier by the electronic export documentation system (EXDOC), that should enable more efficient tracing of product. As Australia will seek recognition for regional disease freedom it will be important to be able to recognise the origins of all product in transit. It may well be that only one State/Territory could be affected if it could be proven that the disease was only in that State/Territory and that Australia had effective controls to ensure that it has not or would not spread from that State/Territory.

Systems should be in place at beef producing establishments to enable identification of product from tail tags in yards to cartons, quarters etc. Such a system will also prove useful when resolving a non-emergency issue such as a residue violation or tracing necessitated by



an endemic disease with public health or trade implications. In the case of an emergency disease problem such a system may enable saving of unaffected product, that would otherwise have to be destroyed because of an unknown disease status.

Tracing information will be forwarded to the local disease control centre for recording on the ANEMIS system.

#### **4.7 Proof of freedom**

Proof of freedom must meet both Australian veterinary requirements and relevant OIE provisions.

Official certification for both domestic and export movement requires proof of freedom to be established.

More information is available in the individual AUSVETPLAN **Disease Strategies**.

#### **4.8 Media and public relations**

The enterprise must liaise closely with its clients to keep them informed of the situation at the establishment and any restrictions that are in place regarding its operational status, stock, people and vehicle movements and documentation requirements.

Maintaining an appropriate channel of communication with the media is an important function of the LDCC. It is made very difficult if other information is coming from elsewhere that may appear to conflict with advice given by the LDCC. Advice to the media should be restricted to activities directly affecting the enterprise. General inquiries about the particular disease or the control activities that are being undertaken in the area must be directed to the Public Relations Unit in the LDCC. For further information see the **Public Relations Manual, Section 2.1**.

## APPENDIX 1 List of AUSVETPLAN Diseases

<b>Disease</b>	<b>Cost-sharing</b>
AFRICAN HORSE SICKNESS	NO
AFRICAN SWINE FEVER	YES
AUJESZKY'S DISEASE	NO
AUSTRALIAN BAT LYSSAVIRUS	NO
AVIAN INFLUENZA (VIRULENT FORM)	NO
BLUETONGUE	YES
BOVINE SPONGIFORM ENCEPHALOPATHY	NO
CLASSICAL SWINE FEVER (HOG CHOLERA)	YES
EQUINE INFLUENZA	NO
FOOT-AND-MOUTH DISEASE	YES
JAPANESE ENCEPHALITIS	NO
LUMPY SKIN DISEASE	NO
NEWCASTLE DISEASE (CLASSICAL FORM)	YES
PESTE DES PETITS RUMINANTS	YES
RABIES	YES
RIFT VALLEY FEVER	NO
RINDERPEST	YES
SCRAPIE	NO
SCREW-WORM FLY	YES
SHEEP & GOAT POX (CAPRIPOX)	NO
SWINE VESICULAR DISEASE	YES
TRANSMISSIBLE GASTROENTERITIS	NO
VESICULAR EXANTHEMA	YES
VESICULAR STOMATITIS	YES

## APPENDIX 2 Procedures for key personnel

The following are general procedures that need to be considered in the event of an emergency disease affecting the operations of a meat processing enterprise. Each plant should develop its own detailed contingency plan.

### Preparation

The veterinary officer in charge must ensure that an up-to-date list of contact addresses plus after hours phone numbers of the senior inspection staff is permanently displayed in a prominent place in the inspection staff offices. In addition, the above list must include the appropriate telephone contact numbers for the nearest State veterinary officer, AQIS contact numbers and the disease watch hotline (1800-675-888).

Management in consultation with the veterinary officer or circuit veterinarian must also draw up a site plan as part of the establishment plan, showing:

- all neighbouring properties and type of animals present, if any;
- waterways, drainage etc; and
- fencing, gates, roads etc.

A plan of the establishment itself should be attached, showing identification of yards, freezers, cold stores and other items of interest such as entry/exit points for personnel and vehicles.

For this appendix procedural activities are divided into the following stages:

1. Investigation
2. Alert
3. Operational
4. Resumption of slaughter
5. Within a declared area

### 1 INVESTIGATION STAGE

Any person suspecting an emergency disease either on the slaughter floor or in the yards must immediately notify the establishment veterinary officer or, in his/her absence, notify the supervising food standards officer. In abattoirs operating under a quality assurance arrangement the responsible company employee shall be notified who will immediately notify the State authority.

The veterinary officer (or the most senior food standards officer) on site will be responsible for advice to the State/Territory veterinary authorities. They will also facilitate communications with management and on-site personnel.

State staff are responsible for quarantine, tracing procedures and overall disease control.

#### 1.1 Veterinary officer (or delegate) action list

- a) Carry out a thorough clinical examination of the suspect animal/s in the suspect crush. In the case of a slaughtered animal all practical steps to recover skin, hide or other parts that have been removed should be made and all available organs and tissues should be examined. Details concerning lesions present should be recorded.
- b) Have a food standards officer or responsible plant employee check on the number of animals in the lot or which have come from the same owner, the name and address of the owner, what transport was used for these animals and total animals on the premises.

- c) Immediately contact the local State/Territory veterinary authorities or if not available, the chief veterinary officer or delegate (the disease watch hotline could be used) and provide all details collated. Notify their Area Technical Manager (ATM) AQIS.
- d) After discussion with the State/Territory veterinary authorities and ATM AQIS warn management of the possibility of the need to stop the kill and halt all movement into, out of and within the works. Loaded stock and meat products should remain on vehicles until inspected by a veterinary officer or delegate. Ensure that accurate information is given to management stressing the seriousness of the situation.
- e) Liaise and follow directions of the State veterinarian.

## **2 ALERT STAGE**

The State/Territory veterinary officer or the Commonwealth veterinary officer, shall, if the suspicion of an emergency disease is confirmed, immediately notify the State/Territory CVO. The CVO will then immediately dispatch a diagnostic team for a detailed investigation.

### **2.1 Veterinary officer action list**

- a) Instruct management to refer to their code<sup>3</sup> so that staff will be fully aware of their responsibilities.
- b) Where necessary, order the cessation of any further slaughtering, and processing other than that necessary for the inspection of carcasses that may already have been slaughtered. If possible place extra inspectors or company staff at points on the chain where suspect lesions can be detected before their removal. The chain speed may need to be slowed.
- c) Isolate all animals on the premises suspected to be infected or that may have had contact with suspect animals. The isolated animals must either be placed into lockable pens or under the control of AQIS or management personnel.
- d) Clinically examine all further suspect animals including those remaining from slaughtered groups. Record details of clinical signs, lesions, number of affected animals and their origin. Collect all appropriate specimens as the circumstances warrant.
- e) Segregate any dressed carcasses that have not been exposed to suspect stock.
- f) Place all suspicious or exposed carcasses, and those slaughtered after them, in segregation under retention in a sealed chiller. Segregate the corresponding offal and, if possible, hides and other retained material. If necessary, where body parts eg feet cannot be positively correlated, a sufficiently large batch should be held.
- g) Instruct the supervising food standards officer or responsible company employee to isolate that day's kill, and where practicable, lock and seal all chillers, freezers and other storage areas. Instruct the supervising food standards officer to establish control over all carcasses, by-products, offal, bulk trimmings, blood, hides and any other possibly infected material. Prevent access to those products by unauthorised personnel.
- h) Ensure that all dogs and working horses present on the establishment are properly restrained.

### **2.2 Plant manager action list**

- a) Refer to the abattoir code to check on responsibilities.

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<sup>3</sup> The reference manual to be used by abattoir management.

- b) Organise a gate keeper to maintain a record (names, addresses and telephone numbers) of all visits and departures of personnel as directed by the veterinary authorities. Also, a record is to be maintained as to whether visitors or personnel own or are in contact with susceptible animals outside the abattoir. Vehicles leaving the premises including those owned by employees should be disinfected, paying particular attention to vehicle tyres.
- c) Where necessary, facilitate the cessation of any further slaughtering and processing other than that necessary for the inspection of carcasses that may already have been slaughtered.
- d) Ensure that senior staff assist government officials to maintain control over all carcasses, by-products, offal, bulk trimmings, blood, hides and any other possibly infected material, by preventing access to those products by unauthorised personnel.
- e) Keep the employees advised and occupied to lessen their inclination to want to leave without clearance (videos could be used). Liaison with unions/workers associations is recommended.

### **2.3 Stockyards manager action list**

- a) Under the direction of the inspection staff, isolate all animals on the premises suspected to be infected or that may have had contact with suspect animals.
- b) Liaise with the chief engineer to ensure adequate disposal of all waste water. All stock should be denied access to such water, and it should not be used for irrigation purposes.
- c) Ensure that all dogs and working horses in the stockyards area are properly restrained.
- d) Brief stock truck drivers on disinfection and standstill requirements.

## **3 OPERATIONAL STAGE**

### **3.1 Infected premises site supervisor**

If an emergency disease is confirmed on the premises the LDCC, in liaison with AQIS, will appoint an infected premises (IP) site supervisor who will take the following action:

- a) If not done already serve a written quarantine notice on the premises. Any grossly contaminated vehicles may need to be included in the notice.
- b) Liaise with management to restrict access to and from the establishment to one point, or at the most two points, and to prevent the movement of all unauthorised animals, vehicles, things and people.
- c) Liaise with management to provide a gate keeper to maintain a record (names, addresses and telephone numbers) of all visits and departures of personnel and contacts with animals outside the abattoir. Vehicles leaving the premises, including those owned by employees, should be disinfected paying particular attention to vehicle tyres.
- d) Notify the LDCC of all personnel who own or care for susceptible livestock.
- e) Under direction and if in accordance with the **AUSVETPLAN Disease Strategy**, arrange for all susceptible animals held on the premises to be killed immediately. For rapid destruction shoot in accessible areas for ease of removal for disposal rather than using the knocking box.
- f) When the collection of the required specimens from all suspect animals has been completed, arrange, under direction from the LDCC and in accordance with the **AUSVETPLAN Disease Strategy**, for all carcasses, offals and by-products that are known or suspected to be infected, to be disposed of by salvage for human consumption,

cremation, burial or rendering, including any meats that may have been contaminated by the agent. Materials destroyed under this provision may be subject to compensation therefore accurate records, certified by an approved official, must be kept of all materials destroyed, to support claims for compensation.

- g) Arrange cleaning of the killing floor, all contaminated storage areas and yards as appropriate. This will be followed by planned, detailed disinfection (see the AUSVETPLAN **Decontamination Manual, Section 4**).
- h) Ensure that any remaining meats, animal products, offals or by-products stored on the establishment are satisfactorily identified.
- i) Liaise with management and/or chief engineer and stockyards manager to ensure adequate disposal of all waste water. All stock shall be denied access to such water, and it should not be used for irrigation purposes. Ensure feed, water and shelter is provided if necessary. Other animals on the premises should be moved away from the boundary.
- j) Use the electronic animal emergency information system, (ANEMIS) to facilitate traceforward of all vehicles, products and persons that have left the premises since the affected animal(s) entered the premises.
- k) If at all possible, call a meeting of plant personnel to explain the ramifications of the disease and the precautions that need to be taken both on the works and at home.
- l) Arrange with the management for all workers who are likely to have had contact with suspect animals to remain on site until they have been thoroughly decontaminated ie a shower and a complete change of outer clothing.
- m) Request management to provide a full list of livestock, (including names and addresses of owners and transport) arriving at the works for a period going as far back as the plant normally holds pens of livestock, and to compile a list of each product held in storage, its type and amount of processing to which it has been subjected.
- n) Do not make comments to the media, except if necessary as outlined in Section 4.8.

### **3.2 Supervising food standards officer/Responsible Company Employee action list**

- a) Supervise cleaning of the killing floor, all contaminated storage areas and yards as appropriate. This will be followed by a planned, detailed disinfection under the instructions of the Site Supervisor.
- b) Facilitate identification of any remaining meats, animal products, offals or by-products stored on the establishment.

### **3.3 Plant manager action list**

- a) Stop all movement (refer to the quarantine notice) into, out of and within the works.
- b) Discuss arrangements for cremation, burial or treatment by rendering with the chief engineer and site supervisor. Ensure full safety precautions are taken if stock are shot in the yards rather than the knocking box.
- c) Arrange cleaning of the killing floor, all contaminated storage areas, yards and change rooms as appropriate. This will be followed by planned, detailed disinfection under the instructions of the IP site supervisor.

- d) Facilitate traceforward by the authorities of all vehicles, products and persons that have left the premises since the affected animal/s entered the premises.
- e) Make provisions to provide a full list of stock, (including names and addresses of owners and transport) arriving at the works, for a period going as far back as the plant normally holds pens of livestock, and for a list to be compiled of each product held in storage, its type and amount of processing to which it has been subjected.
- f) Make arrangements for all workers who are likely to have had contact with suspect animals to go to the amenities, leave their boots inside the door, shower, put on a complete change of clothing and go to the canteen to await an explanatory meeting.
- g) Organise for all suspect contaminated clothing to be laundered on the premises, or held in secure plastic bags until appropriate cleaning under supervision can be carried out.
- h) Instruct senior staff to supervise the cleaning and disinfection of all equipment identified as potentially contaminated.
- i) If necessary organise for footbaths containing appropriate disinfectant at the prescribed concentration to be provided at strategic points, (particularly exit/entry to stockyards) for use by all staff. Brief section managers to ensure that footbaths are used and replenished regularly.
- j) Place a standstill order on all vehicles present on the abattoir grounds that were used in the transport of livestock, carcasses or parts thereof. Facilitate thorough cleaning and disinfection of all transport vehicles.
- k) Intensify the rodent and feral animal control program.

#### **4 RESUMPTION OF SLAUGHTER**

After completion of decontamination, consideration may be given to the resumption of slaughtering operations depending on the site of the establishment and the disease situation in the declared areas. Slaughter may only be recommenced on the direction of the disease control authorities. Stock will be allowed to move under permit only and, depending on the disease and circumstances, should be inspected within 24 hours preceding movement. Stock from quarantined premises could have stricter limitations placed on them, such as details of expected time of arrival and the name of the person to call if the shipment does not arrive by close of business on the scheduled day of arrival.

Decisions will have to be made on all product that is held in storage. These decisions will be made by the disease control authorities, in consultation with the IP site supervisor and the abattoir management, and will depend on the availability of suitable markets. It is essential that the contamination of stored products by infected carcasses, by-products or by abattoir staff is prevented.

Modification of existing processing procedures may facilitate the sale of some products eg extra storage time, specified time of chilling before freezing, or heat treatment.

Produce for sale on local markets may only be released at the discretion of the State chief veterinary officer.

The availability or otherwise of markets for produce held in storage may depend on:

- a) the success of the abattoir management, the food standards team and the IP site supervisor in preventing the mixture of infected and clean products at all points of processing;

- b) the accuracy of the records of product origins; and
- c) the results of trace-back procedures.

## **5 PROCEDURES FOR SLAUGHTERING ESTABLISHMENTS AND ASSOCIATED ENTERPRISES OPERATING WITHIN A DECLARED AREA (BUT NOT KNOWN TO BE INFECTED)**

**Animals** may move to the abattoirs only under permit and direct from properties located in the Control Area and certified free from emergency disease. All animals must be slaughtered within 24 hours. No susceptible animals should leave the premises. Facilities must be provided by management for the cleaning and disinfection of vehicles delivering animals to the slaughterhouse. Cleaning and disinfection shall be carried out immediately after unloading. All stock on the premises must be slaughtered before further animals are allowed into the paved holding pens. (It is appreciated that this will not be practicable under all circumstances).

**Paved yards** for holding stock awaiting slaughter must be emptied systematically in the same order as they were filled. All such yards should be thoroughly cleaned and disinfected at least once every twenty-four (24) hours. (**Note:** This provision may restrict capacity to one (1) day's kill). Yards, unloading bays, etc must be hosed down regularly and kept clean at all times.

All **other areas** that are soiled with animal excreta, flesh or fluid shall be cleaned at least daily. In addition, contamination of the environment with the same materials shall be reduced to an absolute minimum.

The **walls and floors** of the slaughterhouse must be washed down, cleaned and sanitised every twenty-four (24) hours or more often if required.

**Slaughtering implements** shall be thoroughly cleansed and sterilised in boiling water or other approved means of disinfection and all other equipment should be thoroughly cleaned and washed when slaughtering and dressing has been completed for the day.

The **walls and floors** of hanging rooms, chill rooms, cold stores, boning and offal rooms and rooms for the storage or processing of edible offals must be cleaned daily. All equipment used in such rooms should be cleaned and sanitised at the end of daily operations.

Inedible **offals**, unprocessed **viscera** and **refuse** should be destroyed by dry rendering, burning or burial on the premises on the day of production. Inedible offals, unprocessed guts and refuse should be stored in leak-proof receptacles when on the premises. Every twenty-four (24) hours the rooms or bays where the receptacles are kept should be thoroughly cleansed and sanitised.

**Hide and skin** rooms, or other areas where hides and skins are stored should be cleaned in a similar manner immediately after the hides and skins have been collected.

All **manure** should be disposed of under supervision. Abattoir operators should note that no manure, refuse, waste meat trimmings or animal matter of any kind (apart from edible offals, or by-products intended for human consumption or for processing) may be removed from an abattoir in a declared area without written permission. They may not be moved out of the control area.

All **persons** working in the abattoir must be supplied daily with clean protective clothing and protective headgear. When work ceases for the day, boots and aprons should be disinfected



and will remain on the premises. Protective clothing should only leave the premises for laundering under adequate security. Workers must use showers where provided.

Only persons working in or having *bona fide* business at the abattoir should be allowed access. Facilities must be provided to allow visitors, particularly stockmen and truck drivers, to disinfect their boots before leaving and they will be compulsorily required to do so.

Accurate **records** must be kept of all animals slaughtered and movement of product and these will be made available, if required, for tracing purposes.

## APPENDIX 3 Codes of practice

The following codes of practice may be required for reference during an emergency disease situation.

### **Codes originating from the Sub-committee on Veterinary Public Health (SCVPH)**

- Hygienic Production and Inspection of Meat for Human Consumption
- Transportation of Meat for Human Consumption
- Smallgoods Factories and Other Meat Manufacturing or Storage Premises
- Game Meat for Human Consumption
- Hygienic Production of Meat Meal
- Construction and Equipment of Abattoirs
- Production, Ante-mortem and Post-mortem of Commercially Grown Rabbits
- Hygienic Manufacture of Natural Sausage Casings
- Product and Inspection of Chilled and Frozen Pet Food

### **Codes originating from the Australian Quarantine and Inspection Service (AQIS)**

- Guidelines for the Welfare of Animals at Abattoirs and Slaughterhouses (Animal Care Statements)
- Approval of chemical compounds used at establishments registered to prepare goods prescribed for the purposes of the Export Control Act 1982
- Construction and Equipment Guidelines of Export Meat Establishments
- Code of Hygienic Practice for Heat-treated Refrigerated Foods Packaged for Extended Shelf Life
- Guidelines for Good Manufacturing Practice in the Smallgoods Industry

## APPENDIX 4 Rendering and destruction of disease agents

**Table 5 Rendering system types and disease classes**

Disease class	Batch dry (EU autoclave system) A	Continuous or batch dry B	Continuous wet (cooker drier) C	Continuous wet (direct fired drier) D
1	1-A	1-B	1-C	1-D
2	2-A	2-B	2-C	2-D

**Table 6 Descriptions of types of rendering required for different classes of disease**

CLASS 1	
1-A	Standard EU 'high risk' material program [133°C for 20 minutes at a pressure of 3 bar (absolute)]; particle size not greater than 50 mm. Alternatively, a rendering system that has been demonstrated equivalent to the EU standard in microbiological performance.
1-B	Standard dry rendering program to the completion of milling followed by reprocessing in the cooker for a period of 60 minutes at a product temperature of not less than 140°C.
1-C	Standard continuous wet rendering program followed by drying for a period of 90 minutes longer than standard at a product temperature of not less than 140°C.
1-D	Standard continuous wet rendering program including a direct fired drying stage where the initial contact temperature is not less than 400°C.
CLASS 2	
2-A	Standard EU 'high risk' material program [133°C for 20 minutes at a pressure of 3 bar (absolute)]; particle size not greater than 50 mm. Alternatively, a rendering system that has been demonstrated equivalent to the EU standard in microbiological performance.
2-B	Standard dry rendering program.
2-C	Standard continuous wet rendering program including standard drying.
2-D	Standard continuous wet rendering program including standard direct fired drying stage.

**Table 7 AUSVETPLAN disease rendering matrix chart**

NO.	DISEASE	CLASS
1	African horse sickness	2
2	African swine fever	2
3	Aujeszky's disease	2
4	virulent avian influenza	2
5	bluetongue	2
6	bovine spongiform encephalopathy	1
7	capripox (sheep and goat pox)	2
8	classical swine fever	2
9	equine influenza	2
10	foot-and mouth-disease	2
11	Japanese encephalitis	2
12	lumpy skin disease	2
13	Newcastle disease	2
14	peste des petit ruminants	2
15	rabies	2
16	Rift Valley fever	2
17	rinderpest	2
18	scrapie	1
19	screw worm fly	2
20	swine vesicular disease	2
21	transmissible gastroenteritis	2
22	vesicular exanthema	2
23	vesicular stomatitis	2

Action for the correct rendering of material is as follows:

1. Consult Table 5 to identify the establishment's rendering system as to type, ie A, B, C, or D.
2. Consult the appropriate process flow diagram for the identified rendering system to determine where primary separation should be established.
3. For those disease agents where physical contamination poses a risk erect temporary physical barriers at the primary separation point to isolate raw material (carcasses/parts/waste) collection area, including all machinery for comminuting, storing and conveying the material to the primary separation point. The purpose of the barriers is to prevent the spread of infection by aerosols, splash or physical contact, from the area prior to heat treatment to the area post treatment where recontamination of the processed meal could occur. The barriers are most easily constructed of pine timber framing

covered by heavy duty polythene sheeting (obtained in rolls from builders' hardware stores in rolls up to 50m x 4m x 200µ). The barriers can be incinerated as part of the decontamination procedure carried out on completion of processing of all suspect or diseased material.

4. The movement of personnel, portable equipment and tools out of the raw material area into any area where heat treated product is to be further processed or stored must be prohibited, unless a decontamination process appropriate to the disease is first carried out. This may include showering and a complete change of clothing for personnel. Different coloured clothing should be used to identify people working in the clean and dirty areas. The danger of contamination of other than the rendered products must also be evaluated and appropriate measures taken to preclude this occurring.
5. Consult the AUSVETPLAN matrix chart (Table 5) to select the appropriate rendering program for the disease agent class (classes 1 and 2 with 1 being the most resistant to thermal processing) for the type of rendering system available at the plant.
6. Set up a procedure to record all meat meal and tallow production to ensure that only product that has been sampled and proven free of the disease organism may be moved from storage.
7. Verify that all items of plant work to the standards set for the disease agent and then commence processing.
8. Verify that the time/temperature parameters selected are being achieved. If the rendering plant is fitted with chart or computer recording of temperature against time this will be automatic system. If not, it will be necessary to record manually all relevant details of loading and cooking, pressing and drying. Use to ensure that meat meal samples taken from storage can be correlated with the time/temperature information relating to their production.
9. Sample processed product at selected time intervals, identify sample, and hold samples for analysis. The size of sample will depend on the amount required to detect an infective dose of the particular disease agent. Consult with the Australian Animal Health Laboratory for guidance. The frequency of sampling is a matter of judgement. Since all material produced between the negative sample prior to and after a positive must be deemed to be positive, the longer the sampling interval, the greater the potential requirement for reprocessing will be.
10. Maintain a storage plan identifying production between samples with the sample taken at the end of the sampling interval.
11. Set up a register of dispatch of meat meal that records all pertinent details including date, destination, production batch identification, receiver, identification of vehicle and driver, and any other information that would facilitate recall or quarantining of the product.
12. On completion of processing of all suspect or diseased material, carry out decontamination, by an appropriate method, of the raw material collection area. This will require dismantling of enclosed machinery so that raw material that has accumulated in inaccessible spaces can be cleaned out prior to decontamination.

## APPENDIX 5 Examples of trace-back systems

### *Recording of stock movements in Queensland*

- cattle - well documented by 'Permit to Travel Stock'
- sheep - above conditions apply
- pigs - no State requirements to document travel
- goats - feral and domestic are treated as for sheep
- deer - treated as for cattle
- horses
- game carcasses

### *Recording of stock movements in South Australia*

- agents' invoices
- cattle - tail tags and vendors declaration if stock are free of hormonal growth promotants
- pigs - tattooed
- horses - paperwork marked with collection point, but not necessarily property of origin
- sheep - those with footrot documented for direct slaughter

After receipt at meatworks:

The company will need to put in place a system of identification that includes a receival docket and the allocated pen numbers. The receival docket should contain essential information such as:

Date .....

Received from .....(owner and address)

Time loaded .....

Delivered by .....(truck driver and company)

Registration number of vehicle and trailer .....

Species of stock .....

Class of stock .....(sex, age)

Numbers of stock .....

Identification .....(tail tags, brands, tattoos, ear marks)

A receival docket should be completed for each lot delivered to the establishment. When accurately completed it should provide concise and rapid trace-back information in the event of an emergency disease being found at a meatworks, or for trace-forward purposes.

Permits, waybills, kill sheets and any documents should be used to produce a list of all stock movements to meatworks with the following information:

- properties
- saleyards
- agents
- trucking companies
- trucks (registration numbers)
- trailers (registration numbers)
- train movements
- stock railway wagons ID

## GLOSSARY

Alert stage	<i>see</i> 'stages of activation'
Agricultural authorities	The State/Territory department of agriculture/primary industry responsible for disease control.
ANEMIS	<i>Animal Health Emergency Information System</i> . A system for the collection, assimilation, actioning and dissemination of essential disease control information using paper documentation and a computer database
Animal products	Meat products and products of animal origin (eg eggs, milk) for human consumption or for use in animal feeding.
Animal by-products	Products of animal origin destined for industrial use, eg raw hides and skins, fur, wool, hair, feathers, hooves, bones, fertiliser.
Area Technical Manager	Technical officer-in-charge of the Australian Quarantine Inspection Services in a particular area.
AUSVETPLAN	A series of documents that describes the Australian response to emergency animal diseases; linking policy, strategies, operations, coordination and emergency-management plans.
Chief veterinary officer	The senior veterinarian of each State or Territory animal health authority who has responsibility for animal disease control in that State or Territory.
Chief Veterinary Officer of Australia	The nominated senior Commonwealth veterinarian in Agriculture, Fisheries and Forestry – Australia who manages our international animal health commitments and the Commonwealth's response to an animal disease outbreak.
Consultative Committee on Emergency Animal Diseases	A committee of State/Territory CVOs, AAHL and CSIRO, chaired by the CVO of Australia (Cwlth AFFA), to consult in emergencies due to the introduction of an emergency disease of livestock, or serious epizootics of Australian origin.
Control area	A bigger area than a restricted area (possibly initially as big as the State) where restrictions will reduce the chance of the disease spreading further afield. The control area may reduce in size as confidence about the extent of the outbreak becomes clearer but must remain consistent with OIE Codes. In principle, animals and specified product will only be able to be moved out of the control area into the free area by permit.
Co-product	The inedible material, other than effluent, produced at the establishment. ( <i>see</i> Animal by-products)



Cyanosis (adj: cyanotic)	Blueness of the skin and/or mucous membranes due to insufficient oxygenation of the blood.
Cost-sharing agreement	Commonwealth/States cost-sharing agreement for the eradication of certain animal diseases.
Dangerous contact animal	An animal showing no clinical signs of disease but which, by reason of its probable exposure to disease, will be subjected to disease control measures, (which may require slaughter of all or some of such animals).
Dangerous contact premises	Premises that contain a dangerous contact animal(s) or other serious contact.
Decontamination	Includes all stages of cleaning and disinfection.
Declared area	A defined tract of land for the time being subject to disease control restrictions under emergency disease control legislation. Types of declared areas include <i>restricted area; control area; infected premises; and dangerous contact premises.</i>
Destroy	To slaughter humanely (when applied to animals)
Discharges	Intentional or unintentional emissions of gas, liquid or solid matter from the premises other than products or by-products.
Disinfectant	An agent used to destroy disease agents outside a living animal.
Disposal	Sanitary removal of animals carcasses and things by burial, burning or some other process so as to prevent the spread of disease.
Effluent	<i>see</i> 'Discharges'.
ELISA	Enzyme-linked immunosorbent assay - a serological test designed to detect and measure the presence of antibody or antigen in a sample. The test uses an enzyme reaction with a substrate to produce a colour change when antigen–antibody binding occurs.
Emergency	Requiring immediate response and highest priority for allocation of resources.
Emergency animal disease	Includes exotic animal diseases and endemic diseases that warrant a national emergency response
Enterprise	<i>see</i> Risk enterprise
Exotic animal disease	A disease affecting animals that does not normally occur in Australia, (also called foreign animal disease).
Fomites	Inanimate objects (eg boots, clothing, equipment, vehicles, crates, packaging, etc) that carry the emergency agent and spread the disease through mechanical transmission.
Foreign animal disease	<i>see</i> Exotic animal disease.

Forward command post	A field operations centre, subsidiary to a local disease control centre.
Hazard analysis -critical control point methodology	A systematic approach to the identification of specific hazards within a process and the description of preventative measures for the control of those hazards.
Hyperaemia	An increase in the amount of blood in an organ or tissue as a result of dilation of supplying arteries.
Immunodiffusion	A serological test to identify antigens or antibodies by precipitation of antigen–antibody complexes after diffusion through agar gel.
Incubation period	The period which elapses between the introduction of the pathogen into the animal and the occurrence of the first clinical signs of the disease.
Infected premises (IP)	A defined premises on which an emergency animal disease is confirmed or presumed to exist.
Investigation stage	<i>see</i> Stages of activation
Job card	A written list of tasks to be carried out by an individual in the early stages of an emergency response.
Lairage area	A lairage area is one that holds animals that are being slaughtered that day.
Lead agency	The agency that controls the disease control operation, having special expertise and legal responsibility in that particular type of emergency.
Local disease control centre (LDCC)	An emergency operations centre responsible for the command and control of field operations in a defined area.
LDCC controller	The veterinary officer nominated by the chief veterinary officer to control the local disease control centre.
Leucopenia	A decrease in the number of white cells in the blood.
Movement controls	Restrictions placed on movement of animals, people and things to prevent spread of disease.
Myiasis	Parasitism of animal tissues by the larvae of flies.
National disease control headquarters	A centre established in Canberra from which national disease control actions are coordinated in an animal disease emergency.
Officer in charge	A person charged with the management of a defined operation.
Operational stage	<i>see</i> Stages of activation.
Operations	The activities necessary to give effect to a disease control strategy.

Plan	An agreed course of action; applied only to AUSTVETPLAN or to its subplans, or the plans of support agencies.
Premises	A defined area or structure which may include part or all of a farm, enterprise or other private or public land, building or other property.
Product	The edible material produced at the establishment ( <i>see</i> Animal products).
Quarantine	Legal restrictions placed on a premises or area that impose specified movement controls and which define how animals materials and things must be handled or treated on the premises.
Rehabilitation	Process of adjustment to circumstances prevailing in the aftermath of an emergency disease outbreak.
Rendering	Processing by heat to inactivate infective agents. Rendered material may be used in various products according to particular disease circumstances.
Restricted area	A declared area in which defined rigorous conditions apply to the movement into, out of, and within, of specified animals, persons or things.
Ring vaccination	Vaccination of susceptible animals around a focus of infection to provide a buffer against the spread of disease.
Risk enterprise	Livestock-related enterprise with a high potential for disease spread or economic loss.
Roadblock	Road check point or barricade to maintain compliance with movement control restrictions.
Role description	Statement of functions of a position within the overall operation.
Sentinel animals	Animals of known health status monitored for the purpose to detect the presence of a specific emergency disease agent.
Site supervisor (infected premises)	The officer-in-charge of operations on the infected premises.
Solipeds	A solid hooped animal.
Stages of activation	
– Investigation	exists when key members of the Animal Health Authority are notified that an animal disease emergency may be imminent, or exists in another State;
– Alert	exists when the CVO notifies the Coordinator of State emergency services that an animal disease emergency may be imminent, or exists in another State;

– Operational	exists when the CVO notifies the Coordinator of the State emergency services that an animal disease emergency exists in the State;
– Stand down	exists when the CVO notifies the Coordinator of the State emergency services that an animal disease emergency no longer exists.
Stamping out	Eradication procedures based on quarantine and slaughter of all infected animals and animals exposed to infection.
State disease control headquarters	The office from which all State emergency control actions in South Australia are coordinated and in which all significant decisions are taken or confirmed.
Surveillance	A systematic examination and testing of animals or things of unknown disease status to determine the presence or absence of an emergency disease.
Suspect animal	An animal that may have been exposed to an emergency disease such that its quarantine and intensive surveillance, but not pre-emptive slaughter, 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 suspected of being contaminated by an emergency disease agent.
Suspect premises	Premises containing suspect animals that will be subject to surveillance.
Strategy	The principles on which control of a disease is based.
Sub-committee on Veterinary Public Health	This is a sub-committee of Veterinary Committee comprised of officers who are responsible for veterinary public health matters from the Australian States/Territories, CSIRO and the governments of Australia and New Zealand. It is required to provide technical and policy advice on veterinary public health issues to governments throughout Australia and New Zealand.
Support agency	An agency having a defined role to assist the lead agency to give effect to animal disease emergency-management plans.
Survey	A program of investigation designed to establish the presence, extent of, or absence of disease.
Tracing	The process of locating animals, persons or things that may be implicated in the spread of disease.

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Vaccine	
– Attenuated	a vaccine prepared from infective or ‘live’ microbes that have lost their virulence but have retained their ability to induce protective immunity.
– Inactivated	a vaccine prepared from a virus that has been inactivated (‘killed’) by chemical or physical treatment.
– Recombinant	a vaccine produced from virus that has been genetically engineered to contain only selected genes, including those causing the immunogenic effect.
Vector	A living organism (frequently an arthropod) that transmits an infectious agent from one host to another. A <i>biological</i> vector is one in which the infectious agent must develop or multiply before becoming infective to a recipient host. A <i>mechanical</i> vector is one that transmits an infectious agent from one host to another but is not essential to the life cycle of the agent.
Wild animals	Includes susceptible wild animals and other vertebrate pests (eg rodents) that may spread the disease agent.
Zoonosis	Disease transmissible from animals to people.

## Abbreviations

AAHL	Australian Animal Health Laboratory
AFFA	Agriculture, Fisheries and Forestry – Australia (formerly Department of Primary Industries and Energy)
ANEMIS	ANimal health <i>emergency</i> information system
AQIS	Australian Quarantine and Inspection Service
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASF	African swine fever
AUSVETPLAN	Australian Veterinary Emergency Plan
BTV	Bluetongue virus (in classical virulent form)
CA	Control area
CCEAD	Consultative Committee on Emergency Animal Diseases
CSF	Classical swine fever
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CVO	Chief veterinary officer
DCP	Dangerous contact premises
EU	European Union
FMD	Foot-and-mouth disease
HACCP	Hazard Analysis - Critical Control Point
IP	Infected premises
IPO	Infected premises operations
IPOT	Infected premises operations team
JP	Justice of the Peace
LDCC	Local disease control centre
NDV	Newcastle disease
NZMAF	New Zealand Ministry of Agriculture and Fisheries
OIC	Officer-in-Charge
OIE	World Organisation for Animal Health (Office International des Epizooties)
RA	Restricted area
RAB	Rabies
RIN	Rinderpest
RVF	Rift Valley fever
SCVPH	Sub-Committee on Veterinary Public Health
SDCHQ	State disease control headquarters
SI	Stock inspector
SITREP	Situation report
SP	Suspect premises
SVD	Swine vesicular disease
SWF	Screw-worm fly
TGE	Transmissible gastroenteritis
VAI	Virulent avian influenza
VEV	Vesicular exanthema
VSV	Vesicular stomatitis

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