AUSTRALIAN VETERINARY EMERGENCY PLAN

AUSVETPLAN

Enterprise manual

Meat processing

Version 5.1

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

National Biosecurity Committee

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EMERGENCY ANIMAL DISEASE WATCH HOTLINE: 1800 675 888

The Emergency Animal Disease Watch Hotline is a toll-free telephone number that connects callers to the relevant state or territory officer to report concerns about any potential emergency disease situation. Anyone suspecting an emergency disease outbreak should use this number to get immediate advice and assistance.

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1 Introduction

1.1 This manual

1.1.1 Purpose

Enterprise manuals address the risks associated with so-called risk enterprises. These are defined as livestock or related enterprises that are a potential source of major infection for many other premises, and can thus increase the potential size of an outbreak and affect its nature.

This manual includes an overview of the Australian livestock industry, risks of emergency animal diseases (EADs) and processes for EAD preparedness. The appendixes include a more detailed overview of specific diseases and the procedures, policies and information required when implementing a response.

1.1.2 Scope

This enterprise manual is aimed at both government officers and meat processing personnel who may be involved in EAD preparedness and response. For government personnel, including those not familiar with the industry, the manual brings together, from many sources, operational guidelines, plans of action and other resources for dealing with EADs. For industry personnel, including owners or managers, the manual provides guidelines on their responsibilities during an EAD outbreak, as required by the relevant government authorities, and strategies that may be adopted to improve preparedness for, or to handle, a suspected EAD. Managers should include elements of this manual in the operational manuals of their enterprises.

1.1.3 Development

This manual has been produced in accordance with the procedures described in the **AUSVETPLAN *Overview***, and in consultation with Australian national, state and territory governments; the relevant livestock industries; nongovernment agencies; and public health authorities, where relevant.

In this manual, text placed in square brackets [xxx] indicates that that aspect of the manual remains unresolved or is under development; such text is not part of the official manual. The issues will be worked on by experts and relevant text included at a future date.

1.2 Other documentation

This enterprise manual should be read and implemented in conjunction with:

- other AUSVETPLAN documents, including response strategies, operational and management manuals, and any relevant guidance and resource documents. The complete series of manuals is available on the Animal Health Australia website[1]

[1] https://animalhealthaustralia.com.au/ausvetplan

- relevant nationally agreed standard operating procedures (NASOPs).[2] These procedures complement AUSVETPLAN and describe in detail specific actions undertaken during a response to an incident. NASOPs have been developed for use by jurisdictions during responses to EAD incidents and emergencies
- relevant jurisdictional or industry policies, response plans, standard operating procedures and work instructions
- relevant Commonwealth and jurisdictional legislation and legal agreements (such as the Emergency Animal Disease Response Agreement – EADRA[3]).

1.3 Training resources

EAD preparedness and response arrangements in Australia

The EAD Foundation online course[4] provides livestock producers and associated industries,[5] veterinarians, veterinary students, government personnel and emergency workers with foundation knowledge for further training in EAD preparedness and response in Australia.

[2] www.animalhealthaustralia.com.au/nationally-agreed-standard-operating-procedures
[3] https://animalhealthaustralia.com.au/eadra
[4] https://animalhealthaustralia.com.au/online-training-courses
[5] For example, meat processors, renderers, feedlotters and transporters

2 The Australian industry

For the purposes of this manual, the meat processing industry is defined as covering animals from the point of entry into a processing establishment (eg abattoir, boning establishment), up to and including the processing and distribution of all meat, co-products, and liquid and solid wastes. This includes petfood establishments and knackeries. Although game meat production is a separate industry, the principles in this manual are also applicable to that industry.

This manual is written with the major abattoir species of cattle, sheep, goats and pigs in mind. However, the principles in it can be applied to any species that is humanely slaughtered and processed for human consumption. Similar principles apply to premises that receive animal products for further processing.

Suppliers of livestock to processing establishments include producers, livestock owners, livestock transporters, and saleyard and/or feedlot personnel.

All export plants most have an Emergency Animal Disease Response Plan (EADRP). In some jurisdictions (New South Wales, Northern Territory, Victoria, Western Australia), all registered domestic establishments must have an EADRP incorporated into their approved arrangements, with annual auditing and appropriate training on emergency animal disease (EAD) recognition. It is recommended that all other meat processing establishments have their own plans developed and tested based on this manual. The MINTRAC (National Meat Industry Training Advisory Council) website includes several EAD and biosecurity resources, including an EADRP template.[6]

In 2019, the value of Australian red meat exports was $13.5 billion. At this time, Australia was the second largest beef exporter, with chilled and frozen meat exports valued at $10.8 billion. Australia was the largest sheepmeat and goat meat exporter in 2019, with exports valued at $4.1 billion and $235.7 million, respectively. Pork exports were valued at $155 million.

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

Despite recent technological advances, the meat industry remains labour-intensive. Many rural Australian towns depend on the local meat processing plants for their economic prosperity. The meat processing industry provides tens of thousands of direct jobs in regional areas.

Detection of an EAD in the red meat supply chain could potentially affect all establishments and could result in reduced throughput. It is important that the entire supply chain, including peak industry councils and jurisdictions, collaborate and cooperate in any eradication program to reduce export restrictions and long-term loss of markets.

2.1 Description

The meat processing industry involves the humane slaughter and hygienic processing of cattle, pigs, sheep and, to a lesser extent, horses, buffalo, goats and deer for human consumption. Game animals are humanely slaughtered and eviscerated in the field before being transported to processing plants via holding chillers. If a vesicular disease were to become established in a remote area, feral livestock species in a game plant may be the first indicators of disease.

[6] https://mintrac.com.au/page.asp?p=202

Refer to the **AUSVETPLAN enterprise manual: *Poultry industry*** for information on meat processing for poultry species.

2.2 Industry operations

Meat processing establishments are widely dispersed throughout the country and located in most states and territories. The majority are in the high-livestock-density regions of southeastern Australia. In 2021, the Australian processing industry comprised export-registered abattoirs and boning establishments, state- and territory-approved export meat processing plants, and many small plants that produce meat and meat products for the domestic market.

Animals may be sent to slaughter through the saleyards system, purchased outright or sold directly 'over the hooks' from a producer's property. During a single day's production run, it is common for processing establishments to handle animals from many different farms, and the largest establishments may handle animals from multiple states. The abattoir, therefore, is a useful place to monitor the health of livestock. Close monitoring is needed because of the large mix of animals, the many stock movements, and the animals' potential exposure to livestock diseases. Vigilance is required to ensure that any signs of an EAD are quickly recognised and reported.

Meat processing establishments vary greatly in size and the number of animals processed. Most specialise in one species, but others process or slaughter up to three species at once on different chains. Many plants incorporate a boning room into their operations, whereas others transport carcases elsewhere for boning. Other enterprises, such as independent boning rooms, smallgoods manufacturers, butcher shops and other retail outlets, add value to the industry.

Such diverse animal and product movements within the industry complicate the tracing process during an EAD outbreak. However, the National Livestock Identification System (NLIS), a whole-of-life identification scheme for individual animals, has dramatically improved the traceability of cattle and sheep. Other systems, such as National Vendor Declarations (NVDs), PigPass, transaction tags linked to state databases, and production chain segregation, have also improved traceability. Processing plants need to have effective recall systems for all edible products (less so for co-products). Meat processing co-products include inedible meat, fat, bone, hides and skins, which must be considered in EAD response programs.

Other materials that must be considered in EAD response programs include meat processing waste products (liquid and solid wastes); and packaging, clothing and equipment that may be contaminated with pathogens.

A number of normal procedures of meat processing plants could be used to assist during an EAD response. For example, commercial cleaning equipment is normally available on-site, and contractors have extensive knowledge of how to appropriately clean the facility.

2.2.1 Animal health

Consignments of livestock should be assessed upon arrival at a facility, with weak, unwell, diseased or injured livestock identified and segregated. Moribund animals must be euthanased immediately (before they are moved). Procedures should be in place for recording and reporting fit-to-load[7] nonconformances and adverse welfare incidents for feedback to suppliers and relevant authorities.

[7] www.mla.eu/articles/animal-welfare/fit-to-load-mlas-updated-livestock-transport-guidance-for-2019

Livestock should be inspected at least every 24 hours after arrival, with action taken if any adverse animal health or welfare outcomes are observed.

Livestock should be segregated into pens in accordance with species (and class, where possible). Penned animals must have sufficient space to move freely and lie down, must be protected from adverse weather conditions through the provision of shade or shelter, and must have access to clean water and, when required, palatable feed.

2.2.2 Waste

Waste from processing establishments comprises liquid and solid organic wastes (eg effluent, fats) and inorganic wastes (eg plastics, cardboard, physical barriers to prevent contamination). Wastes are subject to treatment in declared areas, infected premises and dangerous contact premises. Some co-products have a specific market destination – they may be an edible product or used for petfood – and may sometimes be dumped.

2.3 Industry organisations

The Australian Meat Industry Council is the peak industry council for the meat processing sector. Other important organisations include:

- Australian Hides Skin and Leather Exporters Association – a voluntary trade association whose membership comprises the major exporters of Australian cattle hides, calf skins, sheep and lamb skins, kangaroo skins and goat skins
- AUS-MEAT – providers of agribusiness auditing, certification and training services, supporting more than 70 programs
- Australian Pork Limited – a producer-owned organisation that supports and promotes the Australian pork industry
- the Australian Renderers Association – the national body that represents the interests of producers and traders of rendered products
- Meat & Livestock Australia – the industry marketing and research body for the livestock industry
- MINTRAC (National Meat Industry Training Advisory Council) – a company that represents the industry on training matters
- the Red Meat Advisory Council – a collective group of industry leaders
- the Australian Meat Processor Corporation – a research and development corporation that supports the red meat processing industry throughout Australia.

2.4 Industry regulations, standards and programs

The Livestock Production Assurance (LPA) program is an on-farm program that underpins the red meat processing sector's traceability claims and market access. The NLIS is Australia's system for the identification and traceability of cattle, sheep and goats. Underpinning both the LPA and the NLIS, NVDs provide evidence of livestock history and on-farm practices when livestock are transferred through the value chain, and would be an important source of knowledge when tracing animals in an EAD outbreak.

The Australian Pork Industry Quality Assurance Program (APIQP®) is an industry-sponsored on-farm quality assurance (QA) program. QA certification allows producers to demonstrate that they meet legal requirements, industry standards and customer specifications. It requires producers to document procedures on farm for carrying out key tasks, monitoring tasks, recording the resulting actions, and checking that the results comply with the standards.

The Australian Livestock Processing Industry Animal Welfare Certification System is an independently audited certification program used by livestock processors to demonstrate compliance with industry best-practice standards for animal welfare, from receipt of livestock to the point of humane processing.

2.5 Legislation relevant to the industry

National, state and territory legislation for the meat processing sector has been enacted for the purpose of controlling EADs.

The Commonwealth legislation is mainly concerned with preventing the introduction and spread of disease or the introduction of things that may carry disease. State and territory legislation aims to control and eradicate disease in animals, and establishes controls over animal movement, treatment, decontamination, slaughter and compensation. Wide powers are conferred on government inspectors, including the power to enter premises, order stock musters, test animals, and order the destruction of animals and products that are suspected of being infected or contaminated.

Legislation or legislative instruments that may be relevant to procedures in the meat processing industry can be found in Appendix 6.

2.6 Animal welfare

Maintaining high animal welfare standards is essential during an EAD response, consistent with legislation, codes, and national standards and guidelines.

AUSVETPLAN operational manuals, including ***Livestock welfare and management*** and ***Destruction of animals***, describe in detail the recommended operational procedures for different aspects of an EAD response.

Legislation relating specifically to animal welfare is mostly state and territory based.

2.6.1 National standards and model codes of practice

National standards and national model codes of practice for animal welfare in the livestock industries provide minimum standards for the care to be given to animals. They have been adopted throughout Australia, either directly by reference in legislation or indirectly in the development of state and territory codes to meet specific regional needs. The model codes are also used as a resource for the development of training and awareness programs.[8]

The Australian Animal Welfare Standards and Guidelines[9] are a single animal welfare regulation model that can be adopted by each state and territory government. The standards are the legal

[8] www.publish.csiro.au/foodandagriculture/livestockcodes
[9] www.animalwelfarestandards.net.au

requirements for livestock welfare, and the guidelines provide recommended practices to achieve desirable livestock welfare outcomes. For example, every state has now implemented the Australian Animal Welfare Standards for the Land Transport of Livestock.

3 Emergency animal diseases and the industry

3.1 Risk of disease spread from the enterprise

In determining the disease risk posed by different products, co-products and waste products, the following should be kept in mind:

- The disease agent must be present and have the potential to persist in or on the products involved.
- The opportunity must be present for susceptible animals to come into contact with contaminated products.
- The disease agent must be present at sufficient levels to initiate infection.
- Infection must be able to occur from contact with products – for example,
    - ingestion of meat by pigs for African swine fever, classical swine fever and foot-and-mouth disease (FMD)
    - ingestion of pasture contaminated with effluent containing the disease agent, which can potentially occur with FMD virus if effluent is used for irrigation of pastures
    - mechanical spread through contact, which can occur for a range of vesicular diseases, including FMD.
- The disease agent could be transferred through contact with personnel or equipment.

Full details about emergency animal diseases (EADs) can be found in the respective **disease-specific AUSVETPLAN response strategies**.

A number of products and co-products might leave the enterprise, depending on the processing establishment and whether it undertakes further processing. The major outputs include carcasses, packaged products (eg edible meat and offal, petfood), rendered product (meatmeal and bonemeal, tallows), co-products to be rendered (offal, fat, meat not suitable for human consumption), and hides and skins.

Many products derived from the meat processing enterprise are used by other industries. Examples are animal proteins fed to pigs and poultry, and effluent used on pastures. Appendix 1 illustrates the risks for some diseases.

Diseases may also be transmitted from animals in lairages awaiting slaughter. Transmission could be via multiple methods, including direct contact, indirect contact, insect vectors, or wind or aerosol spread.

3.1.1 Factors to consider in assessing risk of disease spread

Live animals

High stocking densities in lairages and holding pens will facilitate disease spread if the primary method of transmission is direct contact or aerosol spread (eg FMD). Spread can also occur indirectly though the ingestion of contaminated feed, aerosols carried by the wind, or contaminated fomites. Some disease agents, such as African swine fever virus, can remain viable in the environment (eg pig pens) for up to 57 days at 4 °C (Davies et al 2017), and for many months in a proteinaceous environment, such as raw, unprocessed, frozen meat (Penrith & Vosloo 2009). Animals that have

recovered may become persistently infected, serving as virus carriers. Arthropod species (eg ticks) and wild animals (eg rodents, feral pigs) may also act as reservoirs and vectors (Queensland Government 2020).

Products

Persistence of pathogens outside the host organism is affected by a combination of biological factors (eg presence of viral envelope, type of viral genome), physical factors (eg temperature, relative humidity, sunlight) and chemical factors (eg pH, presence of proteins) (Vasickova & Kovarcik 2013).

Viruses produced in either the intestines or livers of infected animals are relatively stable outside the host, with an ability to withstand a pH as low as 3 for a certain time. Although viruses are destroyed by boiling, the thermal stability of some is significant (Carter 2005). Viruses can be preserved by chilling or freezing – this is a particular problem for meat products and meat processing co-products (Vasickova & Kovarcik 2013).

Co-products

As well as offal and casings, co-products of meat processing can include wool, hair, skins, hides, tallow, medical or pharmaceutical supply materials, product for rendering (including meat, blood, fat and bonemeal) and other saleable material (eg manure). There is considerable risk of onward transmission of EADs through inappropriate treatment of co-products. The relative value of co-products may decrease once a processing establishment is classified as an infected premises, dangerous contact premises or dangerous contact processing facility. Even if a co-product poses little risk of onward transmission of disease, customers and trading partners may place restrictions on the use or import of such materials.

The ultimate destination and use of co-products will be established through a risk assessment process based on the Emergency Animal Disease Response Plan put in place by the relevant jurisdiction(s). If co-product material is to be rendered based on risk assessment, the rendering process must adequately inactivate the disease agent. A summary of the parameters necessary for the treatment of various disease agents can be found in Appendix 7.

People

People present a risk of disease transmission if they become contaminated with the disease agent. People can carry disease agents on their clothes, footwear and bodies, and pass it on to susceptible animals. Humans can harbour FMD virus in their respiratory tract for 24–48 hours (OIE 2021). People were also implicated in the spread of equine influenza in Australia. People should routinely implement biosecurity procedures and have access to adequate personal protective equipment, especially if there is a risk of a zoonotic disease.

Equipment

Equipment used in processing facilities is generally nonporous to facilitate effective cleaning and removal of infectious agents. However, it should be noted that most viruses remain viable for longer on nonporous surfaces (Boone & Gerba 2007), and so the importance of adhering to appropriate cleaning and disinfection procedures is emphasised.

Vehicles

Staff vehicles should be kept separate from those used in the day-to-day operation of the enterprise.

Waste

Waste is a broad term encompassing wastewater and effluent from slaughter, processing and cleaning processes; paunch and visceral content; and other liquid or semi-liquid effluent. Liquid components may be disposed of through the wastewater treatment facilities of the processing facility or be transferred to general municipal waste treatment facilities. Solid wastes (paunch, intestinal material, solids screened from wastewater) may be dumped, buried, composted, rendered or spread. The type, capacity and relative condition of treatment facilities, as well as the pathogen type and environmental conditions, will determine the risk they pose to further spread of disease.

The temperature of contaminated wastewater and pathogen type are the most important factors affecting persistence. It is important to know where the waste goes – that is, landfill or the council sewerage system. Generally, viruses can persist for weeks or months at environmental temperatures, and can survive for years when sheltered from ultraviolet light in combination with low temperatures (Carter 2005).

Viruses and bacteria are more abundant in a diverse range of moist soil types than in dry and arid soils (Srinivasiah et al 2008).

3.2 Significant issues for the industry in the event of an EAD incident

An EAD outbreak would significantly affect the meat processing industry, leading to loss of exports and depressed domestic prices.

Most of the economic cost from EAD outbreaks would be revenue losses caused by both immediate and prolonged export bans by sensitive markets. A negative domestic consumer response to the EAD, due to perceived food safety concerns, could also result in a decrease in meat consumption by people, and further losses to industry.

For example, in the event of a large multistate FMD outbreak, a 2011 report by the Australian Bureau of Agricultural and Resource Economics and Sciences estimated a revenue loss of between $49.3 billion and $51.8 billion (in present value terms) over 10 years. Around 99% of these revenue losses are direct economic costs, with the remaining 1% being the cost of disease control.

Another example is the 2019 analysis by Australian Pork Limited of economic losses from an African swine fever outbreak, which estimated economic impacts for the pork industry of $667–877 million from a low-spread scenario and $1.5–2 billion from a high-spread scenario.

3.2.1 Broad issues

The processing sector plays a vital role in the red meat industry. Meat processors are positioned in the middle of the supply chain, between the farm and the end consumer. Processing transforms an animal carcase into various consumable products for both domestic and international supply following receipt of livestock. The processing industry underpins the vitality of Australia's agricultural sector and regional communities.

Continuity of processing operations is essential to reduce the impact of health and welfare concerns for animals waiting to be slaughtered, maintain predictable and reliable market supply domestically and internationally, maintain food security, retain sustainability of employment and support local communities, especially in rural and regional areas. The perishable nature of meat products will cause additional logistical and refrigeration costs.

Mitigating supply chain disruptions from EADs is particularly important for intensive, 'just in time' industries such as the pork or poultry processing industries, which rely on continuous processing. Processing bottlenecks would severely impact animal welfare, and create serious food supply concerns for both domestic and export markets.

Processing plants also rely on a consistent supply to meet market requirements. Movement controls that would be imposed in Australia in the event of an EAD incident, such as those relating to movement from a restricted area or a control area, may restrict the short- to medium-term movement of livestock from farms to processing establishments.

Timely resumption of slaughter after the implementation of a rapid, efficient and effective response to an EAD is necessary to mitigate risks to animals, people, communities, economies and trade.

3.2.2 Nature of the incurred losses

Direct costs associated with an EAD outbreak may include costs of personnel, logistics, vaccines and compensation. Indirect costs may include loss of production, loss of income/profitability and reduction in tourism.

An EAD outbreak will create:

- financing issues (and associated interest charges) for recurring costs associated with business operations in the absence of all, or part, of the business's cash flow
- issues relating to decontamination, and possibly plant access, to meet permit requirements for re-establishing movement of, and trade in, meat products – both domestically and internationally
- environmental issues where on-property or off-property disposal (eg rendering, incineration, burial, burning) is required for carcasses and other contaminated items
- additional costs for any rendering treatment and/or monitoring
- potential losses due to depreciation in market value
- herd and genetic losses as a result of disease control measures
- job losses as businesses respond to the reduced ability to maintain their normal business operations
- potential company closures.

Compensation may be available for processors if livestock, meat, meat products or property are destroyed. Details are available in the **AUSVETPLAN operational manual *Valuation and Compensation***.

3.2.3 Possible longer-term implications

Strong biosecurity has ensured that Australia has maintained a favourable disease status, which serves as a foundation for Australia's market access. Consequences of failed biosecurity include loss of market access, retention and competitiveness. The social, economic and trade consequences of

EADs have been demonstrated by outbreaks of FMD in the United Kingdom and avian influenza in Asia (Victorian Auditor General's Office 2008).

3.3 Diseases of concern for the industry

Several EADs potentially affecting meat-producing species are currently identified as sufficiently serious to require national response agreements (see Section 5.2). Most are exotic, but some (such as anthrax and Hendra virus) are endemic. These EADs are covered by a cost-sharing agreement to share the costs of eradication between the Australian Government, the state and territory governments, and industry.[10]

This manual focuses on those diseases that could be transmitted by animal products and coproducts, or in the operations of processing meat.

Veterinarians and others looking for detailed, disease-specific information should refer to the **disease-specific AUSVETPLAN response strategies** or to *Emergency animal diseases: a field guide for Australian veterinarians* (DAFF & CSIRO 2019).

Information on the persistence of disease agents in carcases and animal products can be found in *Persistence of disease agents in carcases and animal products* (Scott Williams Consulting 2017).

The diseases in Table 3.1 are of importance to the meat production and processing enterprises because they may potentially be transmitted via meat or meat co-products, or in meat processing operations. For more information, see the relevant **disease-specific AUSVETPLAN response strategy**.

Table 3.1 Summary of diseases that are of major concern in a meat processing facility

Disease name	Main species affected	Human health risk/zoonotic concern	Main transmission pathways	EADRA category
African horse sickness	Horses, donkeys, mules, zebras, dogs	No	Biological vector (primary transmission). Ingestion of infected meat is a possible source of transmission (dogs)	3
African swine fever	Pigs	No	Direct contact, ingestion, fomites, biological vectors	3
Anthrax	Cattle, sheep, horses, pigs, goats, dogs, humans	Yes, usually contracted by people working with infected animals or animal products such as hides or meat (CDC 2015)	Cutaneous, inhalation, ingestion	3
Aujeszky's disease	Pigs, cattle, sheep,	No	Direct contact, aerosol, fomites, ingestion	4

[10] https://animalhealthaustralia.com.au/eadra

Disease name	Main species affected	Human health risk/zoonotic concern	Main transmission pathways	EADRA category
	goats, cats, dogs			
Bovine spongiform encephalopathy	Cattle	Yes; may be contracted by people handling infected material such as central nervous system tissue (AHA 2021)	Ingestion	2
Classical swine fever	Pigs	No	Direct contact, indirect contact, ingestion	3
Equine influenza	Horses	No	Direct or indirect contact	4
Foot-and-mouth disease	Cattle, buffalo, camels, sheep, goats, deer, pigs	No; people may rarely be infected with FMD virus through wounds to the skin by handling diseased animals (AHA 2014)	Direct contact, indirect contact, inhalation, ingestion	2
Hendra virus infection	Horses	Yes; people can be infected with Hendra virus through close contact with respiratory or oral secretions, body fluids or blood from an infected horse	Direct contact, indirect contact, inhalation, ingestion	2
Lumpy skin disease	Cattle	No; reported as causing lesions, such as small red papules and vesicles on the hands and arms, in humans working with some strains of the virus in Sweden and India. No generalised disease has been reported	Mechanical transfer via vector (primary transmission). Direct and indirect contact less common	3
Porcine reproductive and respiratory syndrome	Pigs	No	Direct contact, indirect contact, vectors (rarely)	4
Rift Valley fever	Cattle, sheep, goats, camels, water buffalo	Yes; can be contracted by inhalation of aerosols and contact with infected blood. It is potentially fatal	Vector transmission, direct contact, indirect contact	2
Rinderpest	Cattle, sheep, goats, pigs	No	Direct or close indirect contact, ingestion	2

Disease name	Main species affected	Human health risk/zoonotic concern	Main transmission pathways	EADRA category
Scrapie	Sheep, goats	No	Ingestion, direct contact	3
Sheep pox and goat pox	Sheep, goats	No; reported as causing lesions, such as small red papules and vesicles on the hands and arms, in humans working with some strains of the virus in Sweden and India. No generalised disease has been reported	Aerosol, direct contact, indirect contact (fomites). Vector transmission possible but not common	2
Swine vesicular disease	Pigs	No	Direct contact, ingestion, inhalation	3
Transmissible gastroenteritis	Pigs	No	Direct contact, indirect contact, ingestion (rarely)	4
Vesicular exanthema	Pigs, seals, cattle, horses, primates, fish	No	Direct contact, ingestion	3
Vesicular stomatitis	Horses, donkeys, mules, sheep, goats, cattle	Yes; frequently occurs in humans, causing influenza-like symptoms, but rarely produces vesicles	Direct contact, insect vector	2

EADRA = Emergency Animal Disease Response Agreement

Sources: Center for Food Security & Public Health, Iowa State University – fact sheets, World Organisation for Animal Health, *MSD veterinary manual*

3.4 Work health and safety

Some diseases pose a potential risk to anyone handling infected animals or tissues. People responsible for handling infected or suspect animals must always maintain due care and maximum personal hygiene to limit the risk of becoming infected. Diseases presenting the most risk to the meat processing industry at present include Q fever and leptospirosis.

4 Emergency animal disease preparedness and management

4.1 Australia's animal health services

Australian governments, primary industries and other stakeholders work closely together to prevent, detect, control and manage pest and disease outbreaks, and minimise impacts on the economy, the environment and international trade. To do this effectively, governments, industries and stakeholders use consistent and collaborative approaches to determine national animal health priorities. The livestock industries are active partners in policy development, support targeted animal health activities and contribute to emergency responses.

4.2 National arrangements

Governance arrangements for the response to emergency animal diseases (EADs) are outlined in the **AUSVETPLAN *Overview***.

Information on the responsibilities of a state coordination centre and local control centre is available in the **AUSVETPLAN management manual *Control centres management* (Parts 1 and 2)**.

Australia's response planning and coordination are enhanced by collaborative national arrangements between governments and industry, and other key stakeholders. These arrangements include:

- the Emergency Animal Disease Response Agreement (EADRA)
- the Australian Veterinary Emergency Plan (AUSVETPLAN)
- training for EAD response personnel.

Coordination of the response to EAD incidents is further enhanced by the use of established consultative committees and management groups.

4.2.1 Emergency Animal Disease Response Agreement

The EADRA[11] is a legally binding agreement between the Australian Government, state and territory governments, livestock industries and Animal Health Australia. The Australian Meat Industry Council is not a signatory to the EADRA. The EADRA supports a rapid and efficient response to an EAD outbreak.

The agreement establishes basic operating principles and guidelines, and defines roles and responsibilities of the parties that are involved. It provides for formal consultation and dispute resolution between government and industry on resource allocation, funding, training, risk management and ongoing biosecurity arrangements.

The signatories of the EADRA are committed to:

- minimising the risk of EAD incidents by developing and implementing biosecurity plans for their jurisdictions or industries

[11] The full title of the agreement is the Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Responses. For more information, see https://animalhealthaustralia.com.au/eadra.

- maintaining capacity to respond to an EAD by having adequate numbers of trained personnel available to fill the response functions specified in AUSVETPLAN
- participating in decision making relating to EAD responses, through representation on the Consultative Committee on Emergency Animal Diseases (CCEAD) and the National EAD Management Group (NMG) established for the incident
- sharing the eligible response costs of EAD incursions using pre-agreed cost-sharing formulas.

Four categories of diseases are used to determine the liability for costs. These categories have been developed according to the benefits of controlling the disease, as assessed by the likely impact of the specific EAD on human health, socioeconomics, the environment and livestock production.

Table 4.1 describes the four disease categories and their respective cost-sharing arrangements.

Table 4.1 Disease categories and cost-sharing arrangements

Category	Cost-sharing arrangement
1	100% government
2	80% government 20% industry
3	50% government 50% industry
4	20% government 80% industry

The EADRA also contains many other important instructions that provide the basis for a coordinated national EAD response. In particular, it refers to using existing plans, such as AUSVETPLAN; sets standards for accounting, auditing and training personnel; and provides the incentive for developing and maintaining government and industry biosecurity measures.

4.2.2 AUSVETPLAN

This enterprise manual is part of AUSVETPLAN – the Australian Veterinary Emergency Plan.

AUSVETPLAN is Australia's nationally agreed approach to responding to EADs of national significance. It comprises resources that support efficient, effective and coherent responses to these diseases. It has been developed and agreed on by governments and relevant industries in non-outbreak times to ensure that a fast, efficient and effective EAD response can be implemented consistently across Australia with minimal delay.

AUSVETPLAN provides the contingency planning framework for Australia's response to EADs, and is complemented by a range of other plans and resources, including:

- national and state/territory standard operating procedures for the implementation of certain response measures
- plans involving other areas of state and territory emergency management arrangements (eg police, local government)
- diagnostic resources
- training materials.

4.2.3 Training for emergency animal disease response personnel

It is a requirement of the EADRA that, where possible, signatories (governments and industries) use appropriately trained staff to undertake the response functions outlined in AUSVETPLAN for an EAD response.

Governments provide training in response functions for their personnel.

Animal Health Australia's Training Services project provides training for government personnel and representatives of the Australian livestock industries to help prepare them to participate in the CCEAD and the NMG. The program also provides training for livestock industry representatives to prepare them to undertake the Liaison – Livestock Industry function in either a state coordination centre (SCC) or local control centre (LCC).

The responsibilities of the SCC and LCC Liaison – Livestock Industry functions are documented in the **AUSVETPLAN management manual *Control centres management*, Part 2**.[12]

4.3 Controlling an emergency animal disease incident

4.3.1 Governance

Control of an EAD outbreak is a complex operation, requiring rapid mobilisation of resources and coordination of a diverse team of people. An EAD response may require input from all tiers of government and from a range of portfolios, as it may need to address not only animal health issues, but also financial, social, economic, human, trade and recovery issues.

EAD responses are planned and implemented at three levels: national, state or territory, and local.

The Australian Government (through the Department of Agriculture, Fisheries and Forestry) provides international liaison during an EAD response; this includes market access negotiations, international reporting (eg to the World Organisation for Animal Health – WOAH), and coordination of access to overseas assistance through existing agreements. The Australian Government also provides national coordination for the response; more information is provided in the **AUSVETPLAN management manual *Control centres management*, Part 1**.

The CCEAD is the key technical coordinating body, providing the link between the Australian Government, states and territories, industry, Animal Health Australia and the NMG during an EAD response.

The NMG manages national policy and resourcing of the response. It determines whether a disease is eradicable and whether the direct costs of a response should be shared between Australia's governments and the relevant livestock industry(ies) under the EADRA.

Both the CCEAD and the NMG base their recommendations and decisions on current information provided by the affected state or territory, and on guidance provided in AUSVETPLAN.

In an EAD outbreak, relevant state or territory animal health officials manage all aspects of its control and eradication according to a nationally agreed plan (Emergency Animal Disease Response Plan – EADRP).

[12] https://animalhealthaustralia.com.au/ausvetplan

The chief veterinary officer (CVO) of the state or territory in which an EAD outbreak occurs implements disease control measures as agreed in the EADRP and in accordance with relevant legislation. State and territory animal health (or, in many cases, biosecurity) legislation provides broad powers to enable an effective response to EADs, including the ability to enter premises, examine records, order livestock musters, control livestock movements, request that animals or products be submitted for testing, and isolate and destroy diseased or suspected diseased livestock. The chief health officer of the affected state or territory is responsible for managing public health risks and instituting public health control action within that jurisdiction for zoonotic diseases.

An SCC may be established to coordinate response activities across the state or territory, in accordance with the strategic direction provided by the CVO, the CCEAD and the NMG. The SCC maintains overall control of the incident under the CVO and is able to give specific directions to the LCCs to ensure that the CVO's intentions are met.

Disease control activities are managed from an LCC, usually established in the vicinity of the outbreak. The LCC oversees all operational activities within a defined area, assigned by the CVO, including investigations of reports of disease outbreaks; consultation with livestock producers and processors; specimen collection; property quarantine; valuation of livestock and property; livestock slaughter; livestock product tracing, treatment and disposal; and property decontamination.

Information on the structure, functions and responsibilities of SCCs and LCCs is contained in the ***Control centres management*** **manual, Part 1**. Detailed descriptions of functions and associated activities in an EAD response are contained in the ***Control centres management*** **manual, Part 2**.

The CVO makes ongoing decisions on follow-up disease control measures in consultation with the CCEAD and, where applicable, the NMG, based on epidemiological information about the outbreak.

4.3.2 Response measures

The response to an EAD will be determined by the nature of the outbreak, including:

- how early the outbreak is detected
- the extent of the outbreak
- the location of infected, suspect, trace and dangerous contact premises
- the location of appropriately trained personnel, veterinary services and jurisdictional laboratories
- communication and transport infrastructure
- which species of livestock are affected
- the characteristics of the disease agent involved.

The fundamental aim of national EAD control policy is to eradicate an EAD if this is reasonably feasible.[13] Key factors taken into account are those related to the disease and affected population. For example, the principal option used for many EADs is eradication by stamping out where this is applicable to the EAD in question and is considered to be cost-effective. This may involve use of all or some of the following procedures:

- epidemiological assessment (to understand how the disease is behaving in that particular outbreak)
- quarantine of premises and/or movement controls on potentially infected or contaminated live animals, animal products, people, equipment, vehicles and other things – this will

[13] Refer to the relevant AUSVETPLAN response strategy at https://animalhealthaustralia.com.au/ausvetplan (disease-specific documents).

include a national livestock standstill if foot-and-mouth disease (FMD) is strongly suspected or confirmed; see the **FMD response strategy** for more information
- tracing of potentially infected animals, and potentially contaminated products and things (eg equipment, vehicles)
- surveillance of susceptible animals
- biosecurity measures for people and equipment
- management of animal welfare
- valuation and compensation for livestock and property (including milk and milk products) destroyed as part of the EAD response
- destruction and disposal of infected and exposed susceptible animals, animal products and contaminated materials
- decontamination of infected premises
- restriction of the activities of certain enterprises
- an industry and public information program (including the proactive use of information technology, mobile devices and social media to reach a wide range of audiences very quickly).

Other measures that may be used where necessary include:

- vaccination
- vector (arthropod or wild animal) control
- treatment of affected animals
- treatment of affected products
- use of sentinel animals
- implementation of industry-specific plans
- establishment of increased testing and surveillance programs
- zoning and compartmentalisation.

In some circumstances, a modified stamping-out approach may be used – for example, by allowing the slaughter of animals at an accredited abattoir to produce a marketable product.

Sometimes, eradication is not considered feasible because the outbreak is already widespread when diagnosed or is considered likely to spread further despite the application of stamping out. In these cases, other control measures may be selected, such as vaccination, with a view to possible containment and eventual eradication; or a state or territory and/or industry-based control program to manage a disease that is likely to become endemic in the population. Where the NMG has reason to believe that eradication is not possible and the disease can only be contained, or in any situation where the cost of an EADRP will exceed an agreed limit on funding, the NMG may decide to stop cost sharing.

4.3.3 Overview of declared areas and premises classifications

Also refer to the **AUSVETPLAN guidance document:** ***Declared areas and allocation of premises classifications in an emergency animal disease response***.

Declared areas

A declared area is a defined tract of land that is subjected to disease control restrictions under EAD legislation. There are two types of declared areas: restricted area (RA) and control area (CA).

Declared areas are declared under jurisdictional legislation. RAs are subject to strict disease control measures. CAs are disease-free buffers between an RA and the parts of Australia that are free of disease (the outside area – OA; see Figure 4.1).

All declared areas need to be clearly identified and easily understood, so that all affected parties can recognise which area they are in, and what regulations and control measures are applicable to them.

Declared areas are declared by a CVO or their delegate, or a ministerial declaration, according to the appropriate legislation of the states and territories involved.

There are also other areas that are not legally declared, but are used for specific reasons:

- transmission areas (TAs), which are used for vector-borne diseases for epidemiological purposes, recognising that vectors are not confined by property boundaries
- the OA, which is used to describe the rest of Australia outside the declared areas.

Area definitions for non-vector-borne diseases

Restricted area (RA)

An RA is a relatively small legally declared area around infected premises (IPs) and dangerous contact premises (DCPs) that is subject to disease controls, including intense surveillance and movement controls.

An RA will be a relatively small declared area[14] (compared with a CA – see below) drawn with at least 'x' km radius[15] around all IPs and DCPs, and including as many suspect premises (SPs), trace premises (TPs) and dangerous contact processing facilities (DCPFs) as practicable. Based on risk assessment, the RA is subject to intense surveillance and movement controls, and other relevant disease controls. The purpose of the RA is to minimise the spread of the EAD. The RA does not need to be circular but can have an irregular perimeter, provided that the boundary is initially an appropriate distance from the nearest IP, DCP, DCPF, SP or TP. Multiple RAs may exist within one CA.

The boundaries will be modified as new information becomes available, including from an official surveillance program. The actual distance in any one direction will be determined by factors such as terrain, the pattern of livestock movements, livestock concentrations, the weather (including prevailing winds), the distribution and movements of relevant wild (including feral) animals, and known characteristics of the disease agent. In practice, major geographic features and landmarks, such as rivers, mountains, highways and roads, are frequently used to demarcate the boundaries of the RA. Although it would be convenient to declare the RA on the basis of local government areas, this may not be practical, as such areas can be larger than the particular circumstances require.

Control area (CA)

A CA is a legally declared area where the disease controls, including surveillance and movement controls, applied are of lesser intensity than those in an RA (the limits of a CA and the conditions applying to it can be varied during an incident according to need).

A CA is a disease-free buffer between the RA and the OA (see below). Specific movement controls, surveillance strategies, and other relevant disease controls will be applied within the CA to maintain its disease-free status and prevent spread of the disease into the OA.

An additional purpose of the CA is to control movement of susceptible livestock for as long as is necessary to complete tracing and epidemiological studies, to identify risk factors and forward and backward risk(s).

The CA will be a larger declared area around the RA(s) – initially, possibly as large as the state or territory in which the incident occurs – where restrictions will reduce the risk of disease spreading

[14] As defined under relevant jurisdictional legislation.

[15] For specific details, refer to the relevant AUSVETPLAN response strategy (https://animalhealthaustralia.com.au/ausvetplan).

from the RA(s). The CA will have a minimum radius of 'y' kilometres,[16] encompassing the RA(s). The actual distance in any one direction will be determined by factors such as terrain, the pattern of livestock movements, livestock concentrations, the weather (including prevailing winds), the distribution and movements of relevant wild (including feral) animals, and known characteristics of the disease agent. In practice, major geographic features and landmarks, such as rivers, mountains, highways and roads, are frequently used to demarcate the boundaries of the CA. The boundary will be adjusted as confidence about the extent and distribution of the incident increases.

In general, surveillance and movement controls will be less intense in the CA than in the RA, and disease-susceptible animals and their products may be more likely to be permitted to move under permit within and from the area than those originating from the RA.

Outside area (OA)

The OA is **not** a declared area but is used to describe the rest of Australia outside the declared areas (CAs and RAs). The OA will be subject to surveillance. Because it is highly desirable to maintain the OA as 'disease-free', the movement of animals and commodities from the RA and CA into the OA will be restricted.

The OA will also be of interest for zoning[17] and compartmentalisation[18] for purposes of trade access, as well as for disease control (see below).

Area definitions for vector-borne diseases

Transmission area (TA)

A TA is an area, not legally declared, that is used for vector-borne[19] diseases for epidemiological purposes, recognising that vectors are not confined by property boundaries. It includes IPs and, where possible, SPs, TPs, DCPs and DCPFs. A TA is subject to an increased level of surveillance, and has movement controls appropriate to its associated RA.

Vector-borne diseases differ from non-vector-borne infectious diseases in that vectors cannot be contained by boundary fences. The TA is thus less concerned with property boundaries or definitions and more with including all infected vectors in the area surrounding known areas of transmission. It will be drawn around known sources of transmission, as evidenced by disease, seroconversion, trapping of infected vectors and any other confirmation of active disease transmission. There may be insufficient information at the start of a response to identify a TA, and an RA may be put in place before a TA can be determined.

In the presence of competent vectors, a TA of 'x' km[20] radius should be drawn. The TA does not need to be circular but can have an irregular perimeter, provided that the boundary is initially an appropriate distance from the nearest IP, DCP, DCPF, SP or TP. This distance will depend on the information gained about vector numbers and competence, environmental factors (eg prevailing winds, rainfall, temperature, humidity), and the number and distribution of infected and/or susceptible animals. In the absence of competent vectors, the TA may be reduced in size.

Restricted area (RA)

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[16] For specific details, refer to the relevant AUSVETPLAN response strategy (https://animalhealthaustralia.com.au/ausvetplan).

[17] The process of defining, implementing and maintaining disease-free and infected areas, in accordance with WOAH standards. Zoning is based on geopolitical and/or physical boundaries and surveillance, in order to facilitate disease control and/or trade.

[18] The process of defining, implementing and maintaining one or more disease-free establishments, under a common biosecurity management system, in accordance with WOAH standards. Compartmentalisation is based on applied biosecurity measures and surveillance, in order to facilitate disease control and/or trade.

[19] In most cases, a TA is focused on insect (arthropod) vectors.

[20] For specific details, refer to the relevant AUSVETPLAN response strategy (https://animalhealthaustralia.com.au/ausvetplan).

An RA will be a larger legally declared area around the TA. The boundary of the RA does not have to be circular or parallel to that of the TA but should be at least 'y' km[21] from the boundary of the TA; this distance may be influenced by WOAH standards or an official control program. The RA can include areas of known competent vector distribution. In general, surveillance may be less intense than in the TA, but movement controls will be the same.

The boundary of the RA will be adjusted as confidence about the extent of the incident increases. It will take into account the relevant WOAH *Terrestrial animal health code* chapter on the disease and, if appropriate, WOAH standards on zoning and compartmentalisation (Chapter 4.3[22]).

Other types of areas

It is possible that other types of areas (eg vaccination area, surveillance area), which are not legally declared, may be used for disease control purposes in some jurisdictions.

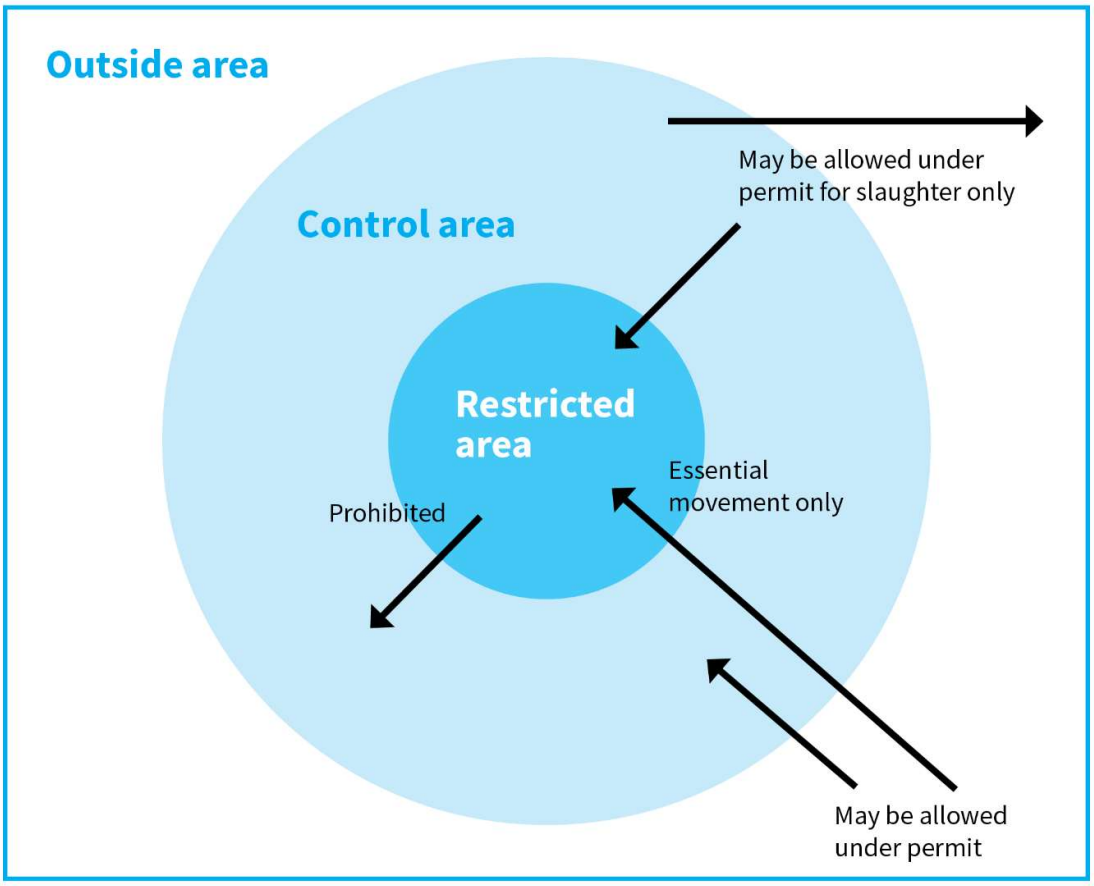


Figure 4.1 Schematic illustration of declared areas, indicating standard movement controls

[21] For specific details, refer to the relevant AUSVETPLAN response strategy (https://animalhealthaustralia.com.au/ausvetplan).
[22] www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access

Premises classifications

All premises within declared areas are subject to classification for disease control management and monitoring purposes.

A particular property (or premises) must fit clearly into only one premises classification at a given time. The classifications and their abbreviations are (in alphabetical order):

- approved disposal site (ADS)
- approved processing facility (APF)
- at-risk premises (ARP)
- dangerous contact premises (DCP)
- dangerous contact processing facility (DCPF)
- infected premises (IP)
- premises of relevance (POR)
- resolved premises (RP)
- suspect premises (SP)
- trace premises (TP)
- unknown status premises (UP)
- zero susceptible species premises (ZP).

In addition to these premises definitions, the following 'qualifiers' may be used to describe the outcome of a recent investigation, epidemiological risk assessment or other activity on premises where their status has not changed:

- assessed negative (AN)
- vaccinated (VN)
- sentinels on site (SN).

For example, an ARP that has been determined by the relevant jurisdictional authority as being 'assessed negative' should be recorded as 'ARP-AN', and an IP that has completed a vaccination program should be recorded as 'IP-VN'.[23]

Not all classifications may be needed in a particular EAD response.

Classification of premises provides a framework for authorities to exercise legal powers over such premises, facilitates product tracking, and serves as a communication tool for reporting nationally and internationally on progress in the response.

4.3.4 Use of declared areas and premises classifications in an EAD incident

When an EAD incident is first suspected, the premises involved would undergo a clinical and/or epidemiological investigation. If the case definition, as defined in the relevant AUSVETPLAN response strategy, is met[24] (ie the index case[25]), the relevant CVO or their delegate will determine the premises classification and may declare the premises an IP.

[23] Some jurisdictions might have a date associated with the 'assessed negative' qualifier.

[24] Note that case definitions are under development for some manuals and also that some diseases could be present without showing clinical signs.

[25] The first case to come to the attention of investigators.

After the identification of the first IP, an RA and a CA may be declared.[26] A TA may also be defined, if appropriate. All premises within these areas will be classified. At the beginning of an EAD incident, the initial premises classifications would be IP, ARP, POR, UP and ZP.

Any premises within the RA or CA will have only one classification at any one time. After an epidemiological investigation, clinical assessment, risk assessment or completion of control measures, a premises may be reclassified.

Once the first IP has been identified, intelligence gathering through veterinary epidemiological investigations would quickly lead to the identification of SPs and TPs. These will be high priorities for follow-up investigation by the relevant state or territory authorities. In a worst-case scenario, an SP could become an IP; therefore, SPs need to be investigated as a matter of very high priority. Similarly, investigation and risk assessment of a TP might identify it as an IP, DCP or DCPF. Both an SP and a TP might also be assessed as negative and qualified as SP-AN and TP-AN, and eventually reclassified as an ARP, POR or ZP.

All premises classifications are subject to change as a result of a modification in the case definition(s) or investigation(s) as the incident response proceeds.

Classifications should be applied with information needs of managers in mind. They should assist managers to monitor and report progress. Premises classifications to be used should be agreed early in a response, so that control centre personnel can apply the correct and consistent classifications and definitions from the outset of the investigation and response.

[26] This is invariably the case with highly contagious diseases (eg foot-and-mouth disease, equine/avian/swine influenza, classical swine fever) but may not apply to less contagious diseases (eg Hendra virus, anthrax, Australian bat lyssavirus).

5 Industry preparedness

Contingency planning is necessary in the event of an emergency animal disease (EAD) outbreak, but also has benefits in other emergency situations, such as chemical residue incidents. Forward planning to cope adequately with a disease affecting an establishment will allow a more organised and rapid response and a faster return to normal commercial production.

5.1 Impact of an EAD on the industry

Productivity and socioeconomic impacts vary depending on the EAD. Consequences of failed biosecurity and contingency planning include loss of market access, retention and competitiveness. The social, economic and trade consequences of EADs have been demonstrated by outbreaks of foot-and-mouth disease in the United Kingdom and avian influenza in Asia (Victorian Auditor General's Office 2008).

5.2 National-level industry preparedness and response planning

The Emergency Animal Disease Response Agreement is a contractual arrangement between Australia's governments and industry groups, which establishes basic operating principles and guidelines, and defines roles and responsibilities of the parties involved. It provides a mechanism for sharing eligible costs for EAD responses and allows all affected parties to have a role in the decision-making process.

Nationally agreed standard operating procedures complement AUSVETPLAN by providing guidance to response personnel undertaking operational tasks in biosecurity emergencies.

5.3 Enterprise-level industry preparedness and response planning

An Emergency Animal Disease Response Plan (EADRP) established by a meat processing establishment will contain detailed incident action plans, operating procedures and work instructions that outline the objectives and overall uniform approach to a response to an EAD incident (aligned with AUSVETPLAN). EADRP requirements for domestic processing establishments vary between jurisidictions. Operational responsibility for the response to an EAD in an Australian state or territory primarily lies with the relevant jurisdiction. The Australian Government has powers under the *Biosecurity Act 2015* to support the states and territories, where appropriate.

5.3.1 General biosecurity

Australia's biosecurity response planning and coordination are supported by collaborative arrangements between governments, industry and other key stakeholders. Collaborative efforts

contribute to high-quality policy decisions, and lead to joint government–industry activities that support awareness and improvement of biosecurity and animal welfare.

5.3.2 Procedures for early detection of disease

Passive (general) surveillance regularly occurs during antemortem and postmortem inspections at domestic and export-registered livestock processing establishments. An example is the Transmissible Spongiform Encephalopathies Freedom Assurance Project (incorporating the National Transmissible Spongiform Encephalopathies Surveillance Project), in which samples are collected from clinically consistent, fallen or casualty slaughter cattle.

Personnel dealing with livestock should be specially targeted for training and be observant for any unusual disease signs. This is particularly important for staff who have susceptible livestock at home or who are in frequent contact with livestock. When sick animals are observed, they must be isolated and reported to the on-plant veterinarian, a food safety meat assessor (in export establishments) or other trained food safety inspector, or the district veterinary officer. Sick animals suspected of having an EAD must also be reported to the relevant jurisdictional chief veterinary officer or to the Emergency Animal Disease Watch Hotline. Details of the lot, including the lot number, the owner or the place of origin of the lot, and the number of stock involved, should be recorded. Individual National Livestock Identification System (NLIS) numbers are particularly helpful. Details of the transport should be documented. Permits or documentation accompanying stock should be accurately filed.

On-plant veterinarians should be aware of the possibility of disease and the EAD response strategies that have been developed, and should maintain regular contact with state or territory veterinary officials. If a disease condition suggests an EAD, they must be aware of the actions to be implemented as soon as possible.

5.3.3 Design of the enterprise

Every business should assess the layout of its premises. Forward planning provides a systematic approach to preparing for and responding to a potential EAD outbreak. This will allow the business to identify and prevent risks where possible, prepare for risks that they cannot control, and respond and recover if an EAD incident occurs.

Meat processing plants are highly regulated and are required to comply with the legislative instruments outlined in Appendix 6. In addition, important issues in relation to EADs include the following:

- A well-thought-out layout, organised movements of products and the separation of ‘dirty’ from ‘clean’ areas will result in better control of all products and personnel during an EAD outbreak.
- Areas where live animals assemble should be kept as isolated as possible from slaughtering and processing areas, because live animals will be the major source of infection and risk to other products and personnel. The areas should be separately drained. If possible, livestock entrances should be separate from entrances to other areas of the establishment and away from the main buildings.
- Measures are required to prevent unauthorised entry of producers, transporters and other personnel. Biosecurity controls are required for movement of personnel to prevent cross-contamination.
- Highly contaminated areas, such as slaughter floors, hide and skin sheds, and co-product areas, must be closed off from processing areas for edible product.

- Sections for processing, storage and transport of product should be designed so that products do not have to pass unnecessarily through a section en route to another section, and to enable one-way flow.
- All meat processing facilities and equipment must be made of materials that enable easy and thorough cleaning and disinfection, and proper maintenance.
- All drainage from the establishment must be able to be contained and treated when necessary. Government officials must be advised if drainage is discharged into municipal sewerage systems. Drainage from dirty areas must not pass through or near clean areas. Holding capacity in wet and dry weather should be known. Planning should also cover treatment options and downstream risks if untreated material is not successfully contained.
- If possible, there should be facilities for cleaning out livestock trucks before the vehicles leave the enterprise, so that cleaning and disinfection procedures can be implemented quickly in an emergency. Such facilities would be mandatory in an EAD response.

5.3.4 Livestock

Consignments of livestock should be assessed upon arrival, and weak, unwell, diseased or injured livestock should be identified and segregated. Moribund animals must be euthanased immediately (before being moved).

Livestock should be inspected at least every 24 hours after arrival, with action taken if any adverse animal health or welfare outcomes are observed that may affect biosecurity.

5.3.5 Personnel

Personnel inspecting livestock must be competent to identify abnormal clinical signs of disease and take appropriate action, including contacting the regional veterinarian or calling the Emergency Animal Disease Watch Hotline if an EAD is suspected.

Personnel who are competent in the humane destruction of livestock must be available or contactable for prompt action, as required.

5.3.6 Equipment and facilities

Equipment, including knives, firearms, captive bolt guns, electric prods/goads and stunning equipment should be cleaned, calibrated, maintained, operated and stored in accordance with manufacturers' instructions. Yard laneways, loading/unloading ramps and holding yard facilities should also be cleaned and maintained. Careful consideration should be given to runoff during cleaning procedures to minimise spread of pathogens.

5.3.7 Training of staff

Training of staff for handling an EAD outbreak will result in a better-organised response and possibly an earlier return to normal enterprise functions. National training is provided by Animal Health Australia. It would be desirable for at least one senior person at each meat processing establishment to achieve competency as an infected premises site supervisor.

Livestock staff require training in observation and the ability to recognise abnormalities in animals, although not necessarily to a level at which they could diagnose an EAD. Early recognition of the abnormal, with rapid reporting, should be emphasised. Where companies are responsible for antemortem and postmortem activities, it is even more important that personnel are properly trained and certified in these duties. This training should be incorporated into an EAD plan and regularly audited.

All staff should be informed about the ways that diseases are transmitted, and about products and things that may be involved. Poor personal hygiene and poor practices may increase the risk of disease spread. Appropriate procedures therefore need to be implemented to minimise spread, including spread of zoonotic diseases to humans. Staff should not become involved in an EAD response unless directed to do so, and must follow closely the directions of the disease control authorities. Staff will be advised by government officials and trained in what is expected of them in an emergency, what they should do and where they must assemble.

The most beneficial training, and what is considered best practice, is to 'test' the effectiveness of training before an incident. If possible, a simulated exercise of handling an EAD outbreak at the establishment should be undertaken periodically.

In an EAD outbreak, management will be trained to a high level in containment, cleaning and disinfection procedures, so that they can supervise decontamination procedures, and staff and product control. Management should prepare job cards appropriate to each person's training to enable an organised approach during an EAD incident.

5.3.8 Work procedures, staff hygiene and biosecurity

Good work procedures and staff hygiene will help to contain the spread of contamination throughout the facility, including the spread of contaminated products.

A system should be established to completely separate animals from processing areas. If possible, vehicles carrying livestock should enter the establishment through different entrances from personnel and vehicles used for handling the finished product. Details of vehicles carrying livestock should be recorded, together with times of entry to the establishment.

During periods of heightened disease risk, vehicles should not be used for carrying product into or out of the establishment unless they have been adequately cleaned and disinfected; their movement should be restricted until they have been cleaned.

Staff need to be made aware of limits on their movements outside their immediate work areas, and of the need to properly and regularly clean their hands and follow other personal hygiene practices to minimise the risk of introduction or spread of the disease agent, including zoonotic diseases. Staff movements around the establishment should be restricted to an 'as needs' basis; for example, personnel working in potentially highly contaminated areas should be separated from personnel in processing areas.

Regardless of whether there is an EAD outbreak – but more importantly during an EAD outbreak – livestock personnel, hide-on process operators and operators working in dirty, highly soiled risk areas (eg digestive system collection, fetal blood operators, workers in condemnation areas, rendering staff) should remain physically segregated from clean operational personnel at all times to prevent cross-contamination of personnel, meat and meat products, and other materials. Clean areas include eating areas, amenities areas, smoking areas, administrative facilities and other designated clean areas.

Use of clean clothing for work, and keeping clothing and boots on the premises each day will help to minimise the spread of disease.

5.3.9 Internal quarantine

Internal quarantine facilities and procedures should be set up in advance of an EAD outbreak.

The overall objective of internal quarantine is to minimise movement and contact. Any movements should be from low-risk to high-risk areas. Movements of animals, equipment, personnel, vehicles, products, co-products and waste should be restricted if there is a suspected EAD incident.

Suspect animals must be isolated in a sick or suspect pen for veterinary examination. Sick animals must be removed from the animal holding yards, isolated and held for veterinary examination, or treated or humanely euthanased.

An effective way to segregate sick from healthy animals is to remove the healthy animals to another pen or yard, to minimise unnecessary discomfort and stress for the sick or injured animals. Movement of healthy animals to quarantine pending further EAD investigations is associated with lower risk of exposure to other yard animals than walking a sick, suspect EAD animal through the yards to a hospital pen.

If possible, animals from different groups should be kept separate until they move to the knocking box. Animal holding pens should be cleaned regularly and maintained in an acceptably clean state.

5.3.10 Animal health

The on-plant veterinarian, or food safety meat assessor (in export establishments) or trained food safety inspector will be responsible for general oversight and for ensuring that animals being presented for slaughter are healthy. This officer can also be a source of information on EAD response procedures.

The state or territory veterinary authorities must be contacted in the event of suspicion or confirmation of an EAD. As detailed in the ***Control centres management manual*****, Part 1**, the appropriate stage of activation (eg Alert Phase) will be confirmed. Actions for each phase are listed in the manual.

5.3.11 Disposal methods

More detailed information on disposal methods can be found in the **AUSVETPLAN operational manual *Disposal*.**

Some processing establishments have a rendering plant on the premises, which can be useful in the disposal of animals and products during an EAD outbreak. Not all rendering plants will be suitable for destruction of all pathogens (see Appendix 7) or have sufficient volumetric capacity for disposal. A site (preferably within the establishment) may need to be identified, in consultation with the relevant jurisdictional agency, that is suitable for burning or burying carcases and products. If disposal is not possible within the establishment, carcases and product may need to be transported elsewhere to an approved disposal site or frozen until disposal is organised.

A burial site must be approved and secure, and should be situated so that fluids do not leach to other areas or into water sources. The site should have easy access for vehicles, and the terrain and soil

should be suitable for digging pits according to engineering advice. Environment agencies have regulatory authority over burial and will need to be engaged in most cases, as well as biosecurity authorities and possibly health authorities (if there is a zoonotic risk – for example, from anthrax or Hendra virus).

A fence should be constructed around any animal burial pit to keep feral pigs, wild and domestic dogs, and other large animals outside the contaminated area. This will reduce the risk of transferring an EAD to other animals outside the infected premises and ensure that burial waste does not escape from the control area.

It may be possible to combine rendering with burial or burning disposal methods. Disposal generally needs to be carried out quickly to contain the spread of disease. However, environmental and resource issues often preclude immediate disposal by burial or burning. If immediate disposal by burial or burning is not possible, one option would be to render first using the parameters appropriate for the disease agent. The rendered material can be stored relatively safely pending a decision on whether it can be used or is to be destroyed. Sampling and testing of the rendered material may be undertaken before a decision is made.

Wastewater disposal methods need to be documented. Wastewater should be able to be retained for treatment, if necessary. For example, wastewater could be directed to an area that can be kept free from stock for a lengthy period and that will not allow the wastewater to leach out or drain off. As part of contingency planning for wastewater disposal, the enterprise should determine the holding capacity during wet weather, options for treatment on-site and off-site, and the feasibility of transporting wastewater off-site for treatment if on-site treatment is not possible.

5.3.12 Record keeping

Well-maintained records of animals and products entering and leaving the establishment enable fast and reliable tracing, and may allow some product to be saved from destruction. Such information may be sourced from abattoir and regulatory data (eg National Vendor Declarations, National Livestock Identification System, PigPass) and surveillance collecting systems (eg video surveillance, security records, meat establishment verification systems, condemnation records, previous regulatory audits).

Under Australian legislation (see Appendix 6), all plants must have a procedure for product traceability, withdrawal and recall. 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 also be recorded. Documentation must provide an audit trail by which product can be traced from the live animal to storage, destination and end use.

The recording system should operate from the time a vehicle enters the establishment with animals, through slaughter, processing and storage, to the time product is removed from the premises. It is important that vehicle movements are recorded for forward tracing.

A record should be kept of staff interests in animals outside the establishment (including property identification codes). This will enable quick identification of personnel who are likely to present a risk of spreading infection to other animals, for special advice and possible restrictions.

5.3.13 Water supply

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

5.3.14 Wild and feral animal control

The wildlife and feral animal situation – including native wildlife reservoir hosts – on an establishment should be investigated and documented to enable the veterinary authorities to make an informed decision about whether additional control measures will be necessary in an EAD response.

As normal management practice, the establishment should keep wild and feral animals at manageable levels to minimise the possible spread of infection during a disease emergency.

5.4 Media and public relations

The *Biosecurity incident public information manual*[27] contains detailed information on media and public relations.

In conjunction with the relevant peak industry bodies, management should nominate and train a suitable person to handle media enquiries during an EAD incident. An EAD associated with the enterprise could have a major effect on acceptance of its product during and after the EAD response. The nominated person's comments should reflect the national arrangements, particularly in relation to the national communication network and the local disease control centre.

[27] https://animalhealthaustralia.com.au/ausvetplan

Appendix 1 Emergency animal diseases of concern to the industry

Table A1.1 Likelihood of EAD agent in products, byproducts and discharges from EAD-infected animals in meat processing enterprises

Disease	Species affected	Bone in meat	Deboned meat	Hides and skins	Offals (includes red and green)	Nervous tissue	Effluent (yards, slaughter floor)	Meatmeal, bloodmeal and bonemeal[a]	Manure, paunch and visceral contents
African horse sickness	Equidae	✓	✓	×	✓	×	✓	×	×
African swine fever	Suidae	✓	✓	✓	✓	×	✓	×[b]	✓
Anthrax	Multiple species	✓	✓	✓	✓	✓	✓	×[b]	✓
Aujeszky's disease	Multiple species	✓	✓	×	✓	×	✓	?[c]	✓
Bluetongue	Multiple species	×	×	×	×	×	×	×	×
Bovine brucellosis	Bovidae			✓	✓	✓	✓	×	✓
Bovine spongiform encephalopathy	Bovidae	✓[d]	×	×	✓	✓	×	✓	×
Classical swine fever (hog cholera)	Suidae	✓	✓	×	✓	×	✓	×	×
Equine influenza	Equidae	×	×	×	×	×	✓	×	×
Foot-and-mouth disease	Multiple species	✓	✓	✓	✓	×	✓	×	✓
Hendra virus	Equidae	✓	✓	×	✓	✓	✓	×	✓

Disease	Species affected	Bone in meat	Deboned meat	Hides and skins	Offals (includes red and green)	Nervous tissue	Effluent (yards, slaughter floor)	Meatmeal, bloodmeal and bonemeal[a]	Manure, paunch and visceral contents
Japanese encephalitis	Multiple species	×	×	×	×	×	×	×	×
Lyssavirus	Multiple species	✓	✓		✓	✓		×	✓
Lumpy skin disease	Multiple species	+/–	+/–	✓	+/–	+/–	✓	×	+/–
Peste des petits ruminants	Multiple species	✓	✓	×	✓	×	✓	×	✓
Porcine reproductive and respiratory syndrome	Suidae	✓	✓	×	✓	×	×	×	✓
Rabies	Multiple species	×	×	×	×	✓	×	×	×
Rift Valley fever	Multiple species	×	×	×	×	×	✓	×	×
Rinderpest	Multiple species	✓	✓	×	✓	×	✓	×	✓
Scrapie	Caprinae	×	×	×	×	✓	✓	✓[e]	×
Screw-worm fly	Multiple species	×	×	×	×	×	×	×	×
Sheep pox and goat pox	Caprinae	×	×	✓	×	×	✓	×	×

Disease	Species affected	Bone in meat	Deboned meat	Hides and skins	Offals (includes red and green)	Nervous tissue	Effluent (yards, slaughter floor)	Meatmeal, bloodmeal and bonemeal[a]	Manure, paunch and visceral contents
Swine vesicular disease	Suidae	✓	✓	×	✓	×	✓	×	×
Transmissible gastroenteritis	Suidae	✓	✓	×	✓	×	✓	×	✓
Vesicular exanthema	Suidae and marine mammals	✓	✓	×	✓	×	✓	×	✓
Vesicular stomatitis	Multiple species	×	×	×	×	×	✓	×	×

✓ = risk; × = no known risk; ? = not known or uncertain

a It is illegal to feed this material to ruminants and pigs.

b Traditionally, meat and bonemeal have been a source of infection; however, with appropriate processing requirements and the ruminant feed ban, this should not be a source of infection in Australia (AS 5008:2007 – Australian Standard for the Hygienic Rendering of Animal Products).

c Only if viraemic at time of slaughter.

d Could possibly be involved in spread if it contains lymph node material.

e The scrapie agent is believed to be the probable initial cause of bovine spongiform encephalopathy through feeding of contaminated meat and bonemeal, produced from sheep carcases, in which the agent had not been destroyed by the rendering systems.

Note: The information in this table is a literature-based overview of risk on a product basis, but all livestock product from an infected animal or property may need to be condemned or destroyed based on a risk assessment at the time.

Appendix 2 Response plan when the enterprise is in a declared area

This appendix deals with situations in which a meat processing establishment, knackery or petfood establishment, although not having any clinical or suspected cases of disease, is within a declared area (refer to Section 4) as a result of an emergency animal disease (EAD) outbreak elsewhere.

In an EAD response, the state or territory will issue a table of movement controls, which will detail what is or is not allowed. This should be the key reference for enterprises.

This appendix outlines general concepts; the details will be defined by each incident at the time, based on a risk assessment.

Continued operation of a disease-free enterprise in a declared area

General principles

Within a declared area, the resumption or continuation of an abattoir's operations will be at the discretion of the state or territory disease control authorities. It is likely that no movements of susceptible livestock will be permitted in the short term, but such restrictions may be eased as the disease situation is clarified. This will depend partly on the success of initial quarantine and movement controls.

Enterprises may be permitted to operate if certain measures and facilities are considered appropriate to prevent the spread of disease. Factors to consider include:

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

Minimising risks during continued operation

In collaboration with the infected premises (IP) site supervisor, the owner or manager/management has responsibility for ensuring the provision of sufficient personnel to control the entry of animals, people and things onto the premises. Depending on the size of the operation, two entry/exit points should be established: one for incoming livestock, and another for personnel, stores, equipment and outgoing product. This is to reduce congestion at the entry points and the risk of cross-contamination. There should be only one point of entry for livestock. Entry and exit points should be clearly signposted and strictly policed to maintain separation.

Livestock

The principle of separation and movement control should be applied to livestock and work animals. Livestock for slaughter should not be held for periods that could cause welfare issues. The 'just in time' principle of raw material supply should be used so that the smallest practicable numbers of livestock are held on the establishment. Accurate records should be kept of the animals' number, type, arrival time, place of housing and time of slaughter.

Generally, during an EAD response, stock are only permitted to be moved if accompanied by a permit issued by the local control centre (LCC). No vehicle with animals should be allowed onto the premises unless the driver presents a valid permit. If the vehicle has no permit, the LCC (and potentially the police) should be notified immediately and the vehicle detained in an isolated area until instructions have been obtained from the LCC.

Dogs or horses owned by stock handlers should only be allowed entry if necessary for continued operation and after a biosecurity risk assessment has been completed, in which case the animals' admission depends on the disease involved. Where identified as a potential disease host, horses and dogs must not be used. If deemed a carrier risk but not an infection risk, horses and dogs may be used but must not leave the processing site without appropriate quarantine and decontamination processes.

An entry procedure appropriate to the disease should be established (see the **AUSVETPLAN operational manual *Decontamination*** and the relevant **disease-specific AUSVETPLAN response strategy** for details).

Live animals should be kept securely within the boundaries of the establishment, and movement between paddocks, pens or other defined areas should be strictly controlled and minimised.

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

Regular and thorough veterinary observation of the animals by the on-plant veterinarian, or food safety meat assessor (in export establishments) or trained food safety inspector must be conducted to detect any occurrence of the disease.

Introduction of animals for slaughter

Not all establishments will be able to comply with the additional conditions, and requirements will be considered on a case-by-case basis.

After a risk assessment, and considering animal welfare issues, animals may be admitted for slaughter at an establishment in a restricted area (RA) or a control area (CA), under permit and subject to the following conditions:

- Management must ensure that all issues associated with valuation and compensation are clear.
- Typically, only animals from a herd in which no animal is showing clinical signs of the disease are to be admitted for slaughter, and normally only after the incubation period for the disease has elapsed since the last disease outbreak. The following procedure must be followed
    - All animals to be transported must be identified (eg by National Livestock Identification System or as determined by an authorised officer).
    - The competent authority should conduct an examination of the whole herd of origin before transport of the consignment to the establishment, where antemortem and postmortem examinations must take place.
    - In the case of a vesicular disease, the examination should record temperatures, and examine the tongue, mouth, feet, mammary glands and teats.
    - Times of examinations, findings and results of any tests must be documented.
- Animals must be placed in paved or concrete lairages, either the night before or on the day of slaughter.
- All animals in the lairages must be humanely slaughtered or processed out each day.

- Emptied yards must be disinfected every day after processing.
- Animal identification records must be maintained so that kill sheets indicate the property of origin and identity of each carcase.
- Humane slaughter should be carried out in property-of-origin lots.
- Working animals (such as dogs and horses) must be strictly controlled.
- Animals on the farm of origin will be monitored for several days (this period will depend on the incubation period of the disease) after the slaughter animals have left the farm
    - Product will not be released until the surveillance period has elapsed.
    - If disease appears on the farm during this period, carcases and their parts originating from the farm will be condemned and disposed of by burning, burying, rendering or another appropriate method.
    - If there is insufficient space for disposal on the property of origin, disposal will be managed on a case-by-case basis by the response lead.
- For the nominated period after contact with product (eg 3 days in the case of foot-and-mouth disease), workers should have no outside contact with susceptible animals.
- Extra requirements apply for particular diseases; details are in the relevant **disease-specific AUSVETPLAN response strategy**.

Procedures for slaughtering establishments and associated enterprises operating in a declared area but not known to be infected

Animals may move to a processing facility generally only under permit and direct from specific types of premises (which do not typically include IPs).

Processing facilities that maintain increased biosecurity standards may be classified as approved processing facilities (APFs) by the jurisdictional authority. Before being classified as an APF, a premises is assessed to confirm that it has not received infected animals, or contaminated animal products, wastes or things, and is operating according to agreed biosecurity standards. An APF could have animals or animal products introduced from lower-risk premises under a permit for processing to an approved standard. Animals that arrive at a processing facility must be slaughtered within 24 hours, and 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. Vehicles must be cleaned and disinfected immediately after unloading.

As far as is practicable, all stock on the premises must be slaughtered before further animals are allowed into the holding pens. Lairages 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 24 hours. (Note: This provision may restrict capacity to one day's kill.) Yards, unloading bays, and so on must be hosed down regularly and kept clean at all times.

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

The walls and floors of the slaughterhouse must be washed down, cleaned and disinfected every 24 hours, or more often if required.

Slaughtering implements must be thoroughly cleaned and sterilised, and all other equipment should be thoroughly cleaned and washed when slaughtering and dressing have 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 rendering, burning or burial on the premises on the day of production. Before destruction, materials should be stored in leakproof receptacles when on the premises. Every 24 hours, the rooms or bays where the receptacles are kept should be thoroughly cleaned 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 and processed.

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 may be removed from an abattoir in a declared area without written permission.

All people 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 kept on the premises. Protective clothing should only leave the premises for laundering under appropriate security. Workers must use showers where these are provided.

Only people working in, or having bona fide business at, the abattoir should be allowed access. Facilities must be provided to allow visitors, particularly stock handlers and truck drivers, to disinfect their boots before leaving, and they will be compulsorily required to do so. Truck drivers should remain in the cabs of their vehicles whenever possible and wear protective clothing if outside their trucks. This should be discarded or disinfected before they leave. People must wash and sanitise their hands before leaving the site.

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

Products and co-products

Entry of animal product will be subject to controls similar to those on live animals, and vehicles will undergo a disinfection procedure appropriate to the EAD and the circumstances of the outbreak. Requirements for each disease can be found in the relevant **disease-specific AUSVETPLAN response strategy** and in the World Organisation for Animal Health *Terrestrial animal health code*.

Meat and meat products must only be sold in forms permitted in the relevant disease-specific AUSVETPLAN response strategy – for example, chilled, cured to specifications that destroy the disease agent, or cooked.

Any meat that has already been frozen or processed must be held under security for a judgment on its disposition, which may involve further processing, such as cooking. A system of seals or locks, documentation and inventory control will be needed to achieve this.

Well-maintained records should detail what is produced, the date and batch of production, the place and manner of storage, and the product's destination after it leaves the premises. Product should be stored securely to prevent pilfering, intentional tampering, unauthorised contact by people, and contact by vermin or other animals.

All product produced by the enterprise before declaration of the EAD but within the disease's incubation period should be considered as priorities for tracing. If possible, product produced during the critical period should immediately be identified, separated from other product, and protected from possible contact with the disease agent; for example, protection against aerosol spread of foot-and-mouth disease virus might include full packaging and overwrapping of pallets.

No attempt should be made to transport any goods without first contacting the LCC and, in the case of potential exports, the Australian Government Department of Agriculture, Fisheries and Forestry, to obtain the necessary permits.

Rendering

Slaughtering establishments wishing to continue normal slaughter operations must have a rendering plant or a way to appropriately deal with waste, so that it does not pose a risk of disease spread.

The rendering systems and time–temperature–pressure regimes that are required to inactivate various EAD agents, and actions to be taken, are outlined in Appendix 7.

Discharges (including water)

Depending on the disease, effluent may have to be contained and treated before being discharged normally or in such a way that it will not come into contact with susceptible animals. Environmental regulations must be complied with.

Any unintentional discharges of effluent should be identified and controlled as quickly as possible. The aim is to prevent exposure of susceptible animals to potentially contaminated effluent.

For further information, refer to the **AUSVETPLAN operational manual *Disposal*.**

Vehicles

Livestock trucks will only be permitted to enter the premises on presentation of a valid permit.

Vehicles entering the premises should not come into contact with animals or on-site vehicles already on the premises. Vehicles should not have to be driven through any potentially infective discharges. Management should ensure that deliveries are received directly from suppliers and not after deliveries to farms.

Before being allowed to leave the premises, vehicles should be cleaned and disinfected according to the requirements for the disease (see the **AUSVETPLAN operational manual *Decontamination***).

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

Truck drivers must wear protective clothing and rubber boots, which will be disinfected.

Handwashing facilities must be provided for truck drivers.

Equipment and materials

Equipment and materials that may come into contact with infected animals, products, co-products or discharges should be handled according to the relevant **disease-specific AUSVETPLAN response strategy**.

Personnel

A short information sheet, written in simple language, should be provided to personnel, detailing actions required of them. This may be reinforced through discussions with relevant supervisors.

Workers must undergo an appropriate decontamination procedure at the end of each day's operation. This should include washing and changing into uncontaminated clothing.

All people on the premises should be supplied daily with clean workwear, personal protective equipment and rubber or plastic boots. A secure area for personal equipment, such as knives, steels and scabbards, should be provided so that they are not taken home each day.

Visitors

Only people having bona fide business on the premises should be allowed entry. Non-essential visits should be cancelled or postponed. Arrangements for escorting necessary visitors should be instituted

to ensure that they only enter areas relevant to them and that they undergo suitable disinfection on leaving these areas.

Wild and feral animals

The **disease-specific AUSVETPLAN response strategies** note the importance of vermin and feral animals for each disease.

Section 4.10 of the Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007) requires there to be an effective and continuous program for the control of pests.

Feral and wild animals may play a role in spreading the disease if they are able to gain access to waste materials, live animals, discharges or product. Additional measures should be put in place to minimise this risk.

Any possible sheltering or breeding areas for vermin should be eliminated, and long grass should be kept mown.

Buildings and structures

The establishment will be subjected to thorough cleaning and disinfection (see the **AUSVETPLAN operational manual *Decontamination***).

Approval to continue to operate in a declared area may depend on the establishment having the ability and resources to clean its buildings and other structures.

Appendix 3 Response considerations when the enterprise is an infected premises or dangerous contact processing facility

This appendix addresses the situation in which a meat processing establishment, knackery or petfood establishment has received or held animals meeting the case definition, or the causative agent of the emergency animal disease (EAD) is present. The premises will therefore be an infected premises (IP) or a dangerous contact processing facility (DCPF; if, based on a risk assessment, it appears highly likely to have received infected animals, or contaminated animal products, wastes or things).

The EAD response (including elimination of the agent) will vary according to the particular disease and the agent. The premises will be quarantined, with restrictions imposed on the movement onto or off the premises of all people, animals, livestock products and things. Advice should be given to workers on site at the time of the declaration, and information needs to be sent to contractors who have been on-site.

This appendix outlines general concepts; the details will be defined by each incident at the time, based on a risk assessment.

Disease might be detected if:

- diseased animals are found in the lairage, or
- lesions are recognised in slaughtered animals, or
- trace-back or trace-forward procedures show that the establishment contains animals or product from an IP.

Destruction of animals

The operational aspects of the destruction of livestock and the disposal of carcases are addressed in the **AUSVETPLAN operational manuals *Destruction of animals*** and ***Disposal***.

Decisions about destruction of animals will be made by the regulatory authorities, in accordance with the relevant **disease-specific AUSVETPLAN response strategy**. For most serious EADs, infected or dangerous contact animals will be destroyed.

The relevant authorities will provide oversight and advise on these actions. This may be through the local control centre (LCC).

Records must be kept for valuation and compensation.

Salvaging animals for slaughter

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

- the relevant **disease-specific AUSVETPLAN response strategy** states that the animal product is not a risk, or
- the system of livestock and product identification is such that product can be traced to property of origin and the property is found to be free from disease, or
- the processing method is approved as one that will destroy the infectious agent, or

- epidemiological investigations indicate that the animals were not infected (ie they were not from an IP or could not have been infected by diseased animals).

Disposal

Destruction and disposal or treatment of products and co-products (eg skins, hides, hoofs, horns, animal protein) should meet the specifications in the relevant **disease-specific AUSVETPLAN response strategy**.

Carcasses, products and co-products may be disposed of by burning or burial. Rendering may be an option in certain circumstances.

Effluent must be retained for treatment or disposed of appropriately, and any unintentional discharges of effluent should be identified and controlled as quickly as possible. The aim is to prevent exposure of susceptible animals to contaminated effluent.

All material for disposal should undergo an appropriate risk assessment to ensure elimination of the disease agent. See the **AUSVETPLAN operational manual *Disposal*** for further information.

Decontamination

The operational aspects of decontamination are addressed in the **AUSVETPLAN operational manual *Decontamination***.

In general, the principles and methods used for decontamination during an EAD response will be the same as those routinely applied during cleaning of meat processing establishments, knackeries, and game meat and petfood establishments. The main concern is to ensure that the chemicals used are appropriate for the disease agent and follow the safety data sheet for personnel safety. Decontamination may be required twice, with a specified period (eg 21 days) in between.

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

- a thorough clean-down, with all effluent treated or appropriately handled before its discharge into the environment
- a decontamination program, ensuring that all organic material is removed
- treatment or removal of all product.

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

In an EAD response, the decontamination program should be determined after close consultation between the jurisdictional site controller and other relevant authorities such as the Australian Government Department of Agriculture, Fisheries and Forestry, and plant management.

Vehicles

Livestock trucks will only be permitted to enter the premises on presentation of a valid permit.

Vehicles entering the premises should not come into contact with animals or on-site vehicles already on the premises. Vehicles should not have to be driven through any potentially infective discharges.

Before being allowed to leave the premises, vehicles should be cleaned and disinfected according to the requirements for the disease (see the **AUSVETPLAN operational manual *Decontamination***).

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

Where truck drivers come into contact with potentially infected animals or contaminated product, they must wear appropriate personal protective equipment and undergo decontamination.

Planning should be in place for cleaning and disinfecting emergency vehicles, such as ambulances.

Equipment and materials

Equipment and materials that may come into contact with infected animals, products, co-products or discharges should be handled according to the relevant **disease-specific AUSVETPLAN response strategy**.

Personnel

A short information sheet, written in simple language, should be provided to personnel, detailing actions required of them. This may be reinforced by conducting a general meeting and discussion. SMS notifications may be useful to communicate key issues to staff and the general public.

Workers must undergo an appropriate decontamination procedure at the end of each day's operation. Personnel must wash and change into clean clothing before leaving the premises, and dirty clothing must remain 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.

Wild and feral animals

The **disease-specific AUSVETPLAN response strategies** note the importance of vermin and feral animals for each disease.

Section 4.10 of the Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007) requires there to be an effective and continuous program for the control of pests.

Feral animals may play a role in spreading disease if they are able to gain access to waste materials, live animals, discharges or product.

Any possible sheltering or breeding areas for vermin should be eliminated by keeping long grass mown, destroying relevant nesting sites and removing all food sources.

Other

Buildings and structures

The establishment will be subjected to thorough cleaning and disinfection (see the **AUSVETPLAN operational manual *Decontamination***).

Permission to continue to operate a meat processing enterprise that has been declared an IP will depend largely on the disease agent; the types of buildings, structures, yards and storage areas in the establishment; and the ability to effectively clean and disinfect the establishment.

A period may be specified during which the facility must be vacant, as some types of disease agent die off naturally over time.

Additional measures

The management of an enterprise that has been declared an IP or DCPF may need to take additional measures and introduce stricter supervision and record keeping if the enterprise is to be permitted to operate. 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.

Tracing requirements

Tracing livestock

All stock entering abattoirs for slaughter should be identifiable to property of origin through National Livestock Identification System (NLIS) numbers, tattoos, ear tags or some other form of identification, with documentation as required by state or territory authorities.

During an EAD response, a veterinary officer or inspector will examine the animals and documents to determine which lots are at risk. Records should be made of all NLIS numbers, ear tags or other identification on the animals. Any documents, such as National Vendor Declarations or waybills, should be examined to obtain names of owners, carriers (vehicle registration numbers), agents and routes of travel. This information should be provided to state or territory authorities, who will use it to trace stock to property of origin and to identify possible contacts.

Other issues to be considered are:

- infected animals, alive and dead (including dead in yards), on the premises
- 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 through the premises to another destination.

The receival system at the abattoir should ensure that the information listed in Appendix 4 is available.

Tracing product

It will be necessary to trace product in chillers or freezers if trace-back reveals that the product is contaminated, or might be contaminated, with the disease agent.

The product must be able to be traced to:

- storage establishments/container terminals
- further processing establishments
- retail outlets
- exporting vessels
- overseas countries
- local butcher shops
- homes of staff who have obtained product directly from the plant.

In some abattoirs, cartoned product can be correlated with the kill sheet. Meat transfer certificates, notices of intention, and health certificates and certification covering inedible product will be used for tracing product and notifying overseas countries that import Australian products.

Because Australia may seek recognition for regional disease freedom, it will be important to be able to recognise the origins of all product in transit. Only one state or territory, or part of a state or territory, might be affected if it could be proven that the disease was only in that jurisdiction and that Australia had effective controls to ensure that the disease would not spread further.

Tracing information will be forwarded to the LCC for recording.

Proof of freedom

Proof of freedom from disease must meet relevant World Organisation for Animal Health provisions.

More disease-specific information on proof of freedom is available in the relevant **disease-specific AUSVETPLAN response strategies**.

Media and public relations

Maintaining an appropriate channel of communication with the media is an important function of affected jurisdiction(s). General enquiries 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 affected jurisdiction. For further information, see the *Biosecurity incident public information manual*.[28]

The enterprise must liaise closely with the jurisdiction to inform its clients of the situation and any restrictions on its operational status, stock, and people and vehicle movements, and documentation requirements.

[28] https://animalhealthaustralia.com.au/ausvetplan

Appendix 4 Record keeping required during an EAD response for trace-back investigations

The meat processing establishment 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 unloaded
- delivered by (truck driver and company)
- other properties visited and/or pick-up locations for this consignment and the timeline
- 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 animal disease being found at a meatworks, or for trace-forward purposes.

Permits, waybills, kill sheets and other relevant 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 identification.

Appendix 5 General procedures during an EAD outbreak

The following are general procedures that need to be considered in the event of an emergency animal disease (EAD) affecting the operations of a meat processing enterprise. Each plant should develop its own detailed contingency plan before an outbreak. Where a veterinarian is stationed at a plant, they should develop the plan in collaboration with plant management.

Preparation

The on-plant veterinarian, plant manager or quality assurance manager must ensure that an up-to-date list of contact addresses and after-hours phone numbers of the senior inspection staff is permanently displayed in a prominent place in the inspection staff offices. In addition, the list must include telephone contact numbers for the nearest state veterinary officer, the relevant agricultural department and the Emergency Animal Disease Watch Hotline (1800 675 888).

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

- all neighbouring properties and type of animals present
- truck washdown bays
- weighbridges
- all entry and exit points on the property diagram (eg fencing, gates, roads)
- waterways and drainage
- other on-site livestock holding facilities
- potential waste burial sites
- hide processing areas
- rendering plant.

Portable panel yards may be a useful resource to contain livestock during an EAD outbreak.

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

For this appendix, procedural activities are divided into the following stages of activation for the establishment (note that similar stages of activation will apply to the response as a whole):

1. Investigation
2. Alert
3. Operational
4. Resumption of slaughter

1. Investigation phase

Any person suspecting an EAD, either on the slaughter floor or in the yards, must immediately notify the on-plant veterinarian or, in the absence of that officer, the food safety meat assessor (in export establishments) or trained food safety inspector. In abattoirs operating under a quality assurance

arrangement with no government officers on-site, the responsible company employee must be notified; that employee must immediately notify the state or territory authority.

The veterinarian, or the food safety meat assessor (in export establishments) or trained food safety inspector on-site will be responsible for advice to the state or territory veterinary authorities, and will also facilitate communications with management and on-site personnel.

State and territory staff, with the assistance of abattoir staff, are responsible for quarantine, tracing procedures and overall disease control.

On-plant veterinarian (or delegate) action list

a) Carry out a thorough clinical examination of the suspect animal(s) in the suspect pen or crush. In the case of a slaughtered animal, take all practical steps to recover any identifying tags, skin, hide or other parts that have been removed, and examine all available organs and tissues. Record details of lesions. Keep lesioned tissues (and samples, if possible) for examination and possible sampling by state or territory authorities. Records, especially photographic records, should be made where possible; digital images can be readily shared with relevant experts.

b) Have a food safety meat assessor (in export establishments) or trained food safety inspector, or responsible plant employee check on the number of animals in the lot or the number that have come from the same owner, noting the name and address of the owner, what transport was used for the animals, and total numbers of animals on the premises. This information will be used for trace-back purposes.

c) Immediately contact the local state or territory veterinary authorities or, if they are not available, the chief veterinary officer or delegate (the Emergency Animal Disease Watch Hotline could be used – 1800 675 888), and provide all details collated. Notify the area technical manager (ATM) at the Australian Government if the investigation is occurring at an export plant.

d) After discussion with the state or territory veterinary authorities and the ATM, warn management of the possibility of a need to stop the kill, and to halt all movement into, out of and within the works. Loaded stock and meat products should remain on vehicles until inspected by a veterinarian or delegate. Ensure that accurate information is given to management, stressing the seriousness of the situation.

e) Liaise with, and follow the directions of, the state or territory veterinary officer.

2. Alert phase

The state or territory veterinary officer or the Australian Government veterinary officer will, if an EAD is highly suspected, immediately notify the state or territory chief veterinary officer (CVO). The CVO will dispatch a diagnostic team as soon as possible to conduct a detailed investigation.

On-plant veterinarian action list

a) Instruct management to refer to its approved arrangements (the reference manual used by abattoir management), so that staff are fully aware of their responsibilities.

b) Where necessary, order the cessation of any further slaughtering and of processing other than that necessary for the inspection of carcases of animals that have already been slaughtered. If possible, place extra food safety meat assessors (in export establishments) or trained food safety 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 that are suspected to be infected or that may have had contact with suspect animals. The isolated animals must be placed either in lockable pens or under the control of government veterinary authorities or management personnel.

d) Clinically examine all further suspect animals, including those remaining from slaughtered groups. Record details of clinical signs, lesions, numbers of affected animals and their origin. Collect all appropriate specimens.

e) Segregate any dressed carcases that have not been exposed to suspect stock.

f) Segregate all suspicious or exposed carcases, and those slaughtered after them, in a sealed chiller. Segregate the corresponding offal and, if possible, hides and other retained material appropriately. Where body parts (eg feet) cannot be positively correlated, a sufficiently large batch should be held.

g) Instruct the food safety meat assessor (in export establishments) or trained food safety inspector, 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 food safety meat assessor (in export establishments) or trained food safety inspector to establish control over all carcases, co-products, offal, bulk trimmings, blood, hides and any other possibly infected material. Prevent access to these products by unauthorised personnel. Government seals and/or retain tags should be used to ensure security over product integrity.

h) Ensure that all dogs and working horses present on the establishment are properly restrained.

Plant manager action list

a) Refer to the abattoir approved arrangements to check on responsibilities. In consultation with the on-plant veterinarian or other appropriate government official, prioritise actions after a risk assessment.

b) Organise a gatekeeper to maintain a record (names, addresses and telephone numbers) of all visits and departures of personnel, as directed by the veterinary authorities. A record is also to be maintained of 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 cleaned and disinfected, paying particular attention to the tyres.

c) Where necessary, facilitate the cessation of any further slaughtering, and of processing other than that necessary for the inspection of carcases of animals that have already been slaughtered.

d) Stop all movement into, out of and within the works (refer to the quarantine notice).

e) Ensure that senior staff help government officials to maintain control over all carcases, co-products, offal, bulk trimmings, blood, hides and any other possibly infected material by preventing access to these products by unauthorised personnel.

f) Keep the employees advised and occupied to reduce their inclination to leave without clearance (videos could be used). Liaison with unions, workers associations and visitors is recommended.

g) Provide information on the enterprise, including what species are processed, the number of staff, and lairage, chiller, freezer and rendering capacity. Also note the source of stock, number of stock processed per week and to what markets.

h) Provide details of the availability of tools and equipment on-site (firearms, captive bolt guns, safety bunting, forklifts, loaders, bobcats, waste bins, thermometers, microscopes, internet access).

Stockyard manager action list

a) Under the direction of the inspection staff, isolate all animals on the premises that are suspected to be infected or that may have had contact with suspect animals.

b) Collect waybills and National Vendor Declarations for all stock on the premises or that have been slaughtered in the past 48 hours. Stock haulage companies and drivers should be promptly briefed as it is more than likely that the stock delivery truck has left the meat establishment to return to depot. The truck depot will need to do a trace-back of pick-up locations, deliveries of stock and other potential exposure sites.

c) Trucks and other vehicles (eg refrigerated containers, gas delivery vehicles, vehicles of other regulatory bodies, waste disposal vehicles) may require a permit to enter the premises.

d) Ensure that all dogs and working horses in the stockyards area are properly restrained.

e) Brief truck drivers on cleaning and disinfection requirements, after being given this information by the veterinary officer. In consultation with veterinary authorities, if an EAD is confirmed, ensure that livestock destined for slaughter on subsequent days are appropriately diverted to other sites, where possible.

f) Ensure that good animal welfare standards are maintained, in consultation with the on-plant veterinarian, or food safety meat assessor (in export establishments) or trained food safety inspector.

3. Operational phase

Infected premises site supervisor action list

If an EAD is confirmed on the premises, the LCC, in liaison with the relevant government agricultural department, will appoint an infected premises site supervisor (IPSS), who will take the following action:

a) If it has not already been done, serve a written quarantine notice on the premises. This will cover all animals, product, people and things (including contaminated vehicles) that will be subject to conditions before moving off the premises.

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, people and things.

c) Liaise with management and the LCC to provide a gatekeeper 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 tyres (see the **AUSVETPLAN operational manual *Decontamination***).

d) Notify the LCC of all personnel who own or care for susceptible livestock.

e) If it is in accordance with the **disease-specific AUSVETPLAN response strategy**, under direction, arrange for all susceptible animals held on the premises to be humanely slaughtered immediately. For rapid destruction, kill animals in accessible areas for ease of removal for disposal. There may be situations in which it is preferable to kill animals through the knocking box.

f) If it is in accordance with the **disease-specific AUSVETPLAN response strategy,** when collection of the required specimens from all suspect animals has been completed, arrange, under direction from the LCC, for all carcases, meat, offal and co-products that are known or suspected to be contaminated to be disposed of by salvage for human consumption, cremation, burial or rendering. Materials

destroyed may be subject to compensation, so accurate records, certified by either an officer of the state or territory veterinary authority or a person accredited by the state or territory veterinary authority, must be kept of all materials destroyed to support claims for compensation. See **the AUSVETPLAN operational manual *Valuation and 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 operational manual *Decontamination***).

h) Ensure that any remaining meat, animal products, offal or co-products stored in the establishment are satisfactorily identified.

i) Liaise with management and/or the chief engineer and stockyards manager to ensure appropriate disposal of all wastewater, after treatment if necessary. All stock must be denied access to such water, and it should not be used for irrigation. Ensure that animals are provided with feed, water and shelter, if necessary. Other animals on the premises should be moved away from the boundary.

j) Trace-forward all vehicles, products and people that have left the premises since the affected animal(s) entered the premises.

k) If possible, call a meeting of plant personnel to explain the ramifications of the disease and the precautions that need to be taken, both in the plant and at home. Minimise sharing of sensitive information to the general public from informal avenues.

l) Arrange with 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). Arrangements should be made to ensure that these workers have no subsequent contact with susceptible livestock for a period of time appropriate to the disease.

m) Ask management to provide a full list of livestock (as well as names and addresses of owners and transport) arriving at the works for a period as far back as the plant normally holds livestock, and to compile a list of all products held in storage, their types and the amount of processing to which they have been subjected.

n) Do not make comments to the media, except as outlined in Section 5.4.

Food safety meat assessor (in export establishments) or trained food safety inspector responsible company employee action list

This action list will need to coordinate with the overall plan, and so should be carried out in consultation with the IPSS. Other managers and supervisors will need to be regularly briefed.

a) Supervise cleaning of all production and processing areas, including the killing floor, all contaminated storage areas and yards, as appropriate. This will be followed by a planned, detailed disinfection under the instruction of the IPSS.

b) Supervise the running/clearing off the chain/production line of animals that are not fully processed into refrigeration within required timeframes.

c) Supervise and ensure that food safety obligations are upheld, and in accordance with Australian and export standards.

d) Facilitate identification of any remaining meats, animal products, offals or co-products stored in the establishment.

Plant manager action list

a) Discuss arrangements for cremation, burial or treatment by rendering with the chief engineer and IPSS. Ensure that full safety precautions are taken if stock are destroyed in yards rather than the knocking box.

b) Arrange cleaning of the killing floor, all contaminated storage areas, yards and change rooms, as appropriate. This may be followed by planned, detailed disinfection under the instruction of the IPSS.

c) Facilitate trace-forward by the authorities of all vehicles, products and people that have left the premises since the affected animal(s) entered the premises.

d) Make provision to provide a full list of stock (as well as names and addresses of owners and transport) arriving at the works, for a period as far back as the plant normally holds livestock, and for a list to be compiled of all products held in storage, their types and the amount of processing to which they have been subjected.

e) 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 a clean area to await an explanatory meeting.

f) 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.

g) Instruct senior staff to supervise the cleaning and disinfection of all equipment identified as potentially contaminated.

h) 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.

i) Place a standstill order on all vehicles on the abattoir grounds that were used in the transport of livestock, carcases or parts of carcases. Facilitate thorough cleaning and disinfection of all transport vehicles.

j) 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 only under permit. Depending on the disease and circumstances, stock should be inspected within 24 hours before movement, together with other animals on the property as necessary, to preclude disease. 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 IPSS and the abattoir management, and will depend on the availability of suitable markets. It is essential that contamination of stored products by infected carcases, co-products or 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, heat treatment).

Produce may only be released at the discretion of the state or territory CVO.

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

- the success of the abattoir management, the food standards team and the IPSS in preventing the mixing of infected and clean products at all points of processing
- the accuracy of the records of product origins
- the results of trace-back procedures.

Appendix 6 Legislative instruments

Commonwealth

- *Export Control Act 2020*, which includes regulations covering the export of meat and meat products
    - Export Control (Meat and Meat Products) Rules 2021
- *Australian Meat and Live-stock Industry Act 1997*
- *Biosecurity Act 2015*
- Australia New Zealand Food Standards Code
    - Standard 2.2.1 – Meat and meat products
    - Standard 4.2.3 – Primary Production and Processing Standard for Meat
    - The Food Standards Code applies across Australia and is enforced under state and territory legislation.
- Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007)[29]
- Australian Standard for the Hygienic Rendering of Animal Products (AS 5008:2007)[30]
- Australian Standard for the Hygienic Production of Pet Meat (AS 4841:2006)[31]
- Australian animal welfare standards and guidelines,[32] including standards and guidelines for:
    - multiple production species
    - land transport of livestock[33]
    - saleyards and depots.[34]
- *Model code of practice for the welfare of animals: livestock at slaughtering establishments*[35]

Australian Capital Territory

- *Food Act 2001*
- Food Regulation 2002
- *Animal Diseases Act 2005*
- Animal Diseases Regulation 2006

New South Wales

- *Meat Industry Act 1978*
- *Food Act 2003*
- *Prevention of Cruelty to Animals Act 1979*
- *Biosecurity Act 2015*

[29] www.publish.csiro.au/ebook/download/pdf/5553
[30] www.publish.csiro.au/ebook/download/pdf/5666
[31] www.publish.csiro.au/ebook/download/pdf/6180
[32] www.animalwelfarestandards.net.au
[33] www.animalwelfarestandards.net.au/land-transport
[34] www.animalwelfarestandards.net.au/saleyards-and-depots
[35] www.publish.csiro.au/book/2975

Northern Territory

- *Food Act 2004*
- *Livestock Act 2008*
- Livestock Regulations 2009
- *Meat Industries Act 1996*
- Meat Industries Regulations 1997

Queensland

- *Food Production (Safety) Act 2000*
- Food Production (Safety) Regulation 2014
- *Food Act 2006*
- *Biosecurity Act 2014*

South Australia

- *Livestock Act 1997*
- Livestock Regulations 2013
- *Food Act 2001*
- Food Regulations 2017
- *Primary Produce (Food Safety Schemes) Act 2004*
- Primary Produce (Food Safety Schemes) (Meat) Regulations 2017

Tasmania

- *Primary Produce Safety Act 2011*
- *Food Act 2003*
- Food Amendment Regulations 2012, 2014 and 2016
- Food Regulations 2012
- Primary Produce Safety (Pet Food) Regulations 2014

Victoria

- *Meat Industry Act 1993*
- *Food Act 1984*
- *Food Amendment Act 2020*
- Meat Industry Regulations 2005 and 2015
- Meat Industry Amendment Regulations 2014 and 2018
- Meat Industry (Amendment) Regulations 1998, 2002 and 2003

Western Australia

- *Health (Miscellaneous Provisions) Act 1911*
- *Biosecurity and Agriculture Management Act 2007*
- Biosecurity and Agriculture Management Regulations 2013
- *Food Act 2008*
- Food Regulations 2009
- Western Australian Meat Industry Authority Regulations 1985
- *Exotic Diseases of Animals Act 1993*

Appendix 7 Rendering of material to inactivate disease agents

Biological hazards that may be present in raw material to be rendered include vegetative bacteria, spore-forming bacteria, moulds, viruses and the infective agents for the transmissible spongiform encephalopathies (TSEs), including those that cause scrapie and bovine spongiform encephalopathy (BSE).

Vegetative bacteria and viruses are readily killed by standard rendering time or temperature regimes, but spore-forming bacteria are more heat-resistant.

Rendering systems in Australia must be validated annually to demonstrate that the heat treatment will eliminate *Clostridium perfringens*. Such systems can be expected to eliminate other spore-forming organisms.

In the European Union (EU), the minimum rendering conditions for mammalian material are a core temperature of at least 133 °C for 20 minutes at a pressure of 3 bar (absolute), with a maximum particle size of 50 mm (System A). These conditions have been shown to reduce TSE infectivity by more than $10^{2.8}$ ID_{50} per gram, but cannot be relied on to eliminate all TSE infectivity.

Very few rendering plants in Australia are able to render to the EU standard for mammalian material, which is designed to address possible contamination of the raw material by the BSE agent. The EU will accept other heat treatment systems for nonmammalian material, provided that product sampled daily over a trial period of 1 month is free from heat-resistant pathogenic bacterial spores (*Clostridium perfringens* absent in 1 g). Routine samples of meatmeal taken during, or on withdrawal from, storage must be free from *Salmonella* in 25 g. The number of enterobacteria must not exceed 300 in any one of five subsamples; two subsamples may have counts up to 300, provided the other three do not exceed 10 organisms.

In continuous wet rendering systems (System C), raw material is initially heated to about 95 °C and held for 20 minutes or more. The cooked material is then defatted and dewatered by pressing. The defatted wet solids are dried in an indirect steam-heated drier. The material in the drier is in contact with steam-heated discs at up to 170 °C, but the temperature of the material does not usually exceed 110 °C at the end point. The material is in the drier for 1–2 hours. This type of rendering system has been shown to reduce BSE infectivity by more than $10^{1.4}$ ID_{50} per gram. It is probably capable of eliminating most bacterial endospores, and reliably eliminates viruses and bacterial cells.

Other continuous wet rendering systems (System D) use direct-fired hot-air driers to dry defatted wet solids. These systems have been approved by the New Zealand Ministry of Agriculture and Fisheries as providing a sterilisation effect equivalent to 121 °C in steam for 15 minutes, but it is difficult to control the conditions as specified by that authority. These systems have not been challenged with BSE infective material, and their ability to reduce BSE infectivity is not known. They can eliminate bacterial endospores, provided suitable heat conditions are maintained. They reliably eliminate bacterial cells and viruses.

In batch and continuous dry rendering systems (Systems A and B), the fat is removed by centrifugation (extractors) or pressing (expellers) after most of the water has been evaporated from the material. Fat extraction must be carried out with the correct amount of residual water in the charge, or fat removal is impaired or impossible. Batch dry-rendering systems operated according to the EU heat treatment for mammalian material provide reliable sterilisation for microbial hazards. Batch and continuous dry-rendering systems without pressurisation are capable of eliminating most bacterial

endospores, and reliably eliminate bacterial cells and viruses. Neither system can eliminate all TSE infectivity; any material potentially contaminated with a TSE agent would be incinerated and not released to industry.

Hides and skins

Hides and skins may transmit some pathogens, such as those causing lumpy skin disease, sheep pox and goat pox. Requirements for these products will depend on the nature of the emergency animal disease outbreak.

Action for the correct rendering of material

1. Consult Table A7.1 to identify the disease class (classes 1–3, with 1 being the most resistant to thermal processing). Consult Table A7.2 to identify the appropriate rendering system and the rendering parameters sufficient to inactivate the disease agent.
2. For disease agents that pose a risk through physical contamination, erect temporary physical barriers at the primary separation point to isolate raw material (carcases, parts, waste), 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 used before heat treatment to the area used after 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 from builders' hardware stores in rolls up to 50 m × 4 m × 200 m). The barriers can be incinerated as part of the decontamination procedure after processing is completed.
3. 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 is 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 products other than those that have been rendered must also be evaluated, and appropriate measures taken to prevent this.
4. Set up a procedure to record all meatmeal and tallow production to ensure that only product that has been sampled and proven free from the disease organism is moved from storage.
5. Verify that all items of plant work to the standards set for the disease agent, and then begin processing.
6. Verify that the required time and temperature parameters are being achieved. If the rendering plant is fitted with automatic systems for chart or computer recording of temperature against time, this will be adequate. If not, it will be necessary to record manually all relevant details of loading and cooking, pressing and drying. Use this system to ensure that meatmeal samples taken from storage can be correlated with the time and temperature information relating to their production.
7. Sample processed product at selected time intervals, identify the samples, and hold them for analysis. The size of sample will depend on the amount required to detect an infective dose of the particular disease agent. The state or territory disease control headquarters may consult the CSIRO Australian Centre for Disease Preparedness for guidance. The frequency of sampling is a matter of judgment. Because all material produced since the previous negative

sample must be deemed to be positive, the longer the sampling interval, the greater the potential requirement for reprocessing.

8. Maintain a storage plan identifying production between samples, with the sample taken at the end of the sampling interval.
9. Set up a register of dispatch of material that records all pertinent details, including date, destination, production batch, receiver, vehicle, driver and any other information that would facilitate recall or quarantining of the product.
10. On completion of processing of all suspect or diseased material, decontaminate, using an appropriate method, 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 before decontamination.

Table A7.1 Disease rendering matrix chart

No.	Disease	Disease agent	Disease class[a]
1	African horse sickness	Virus	3
2	African swine fever	Virus	3
3	Anthrax	Spore-forming bacterium	2
4	Aujeszky's disease	Virus	3
5	Avian influenza (highly pathogenic)	Virus	3
6	Bluetongue	Virus	3
7	Bovine brucellosis	Bacterium	3
8	Bovine spongiform encephalopathy	Prion	1
9	Classical swine fever	Virus	3
10	Equine influenza	Virus	3
11	Foot-and-mouth disease	Virus	3
12	Japanese encephalitis	Virus	3
13	Lumpy skin disease	Virus	3
14	Newcastle disease	Virus	3
15	Peste des petit ruminants	Virus	3
16	Porcine reproductive and respiratory syndrome	Virus	3
17	Rabies	Virus	3
18	Rift Valley fever	Virus	3
19	Rinderpest	Virus	3
20	Scrapie	Prion	1
21	Screw-worm fly	Parasite	3

22	Sheep pox and goat pox	Virus	3
23	Swine vesicular disease	Virus	3
24	Transmissible gastroenteritis	Virus	3
25	Vesicular exanthema	Virus	3
26	Vesicular stomatitis	Virus	3

a Class 1 comprises prions (disease agents of TSEs); Class 2 comprises spore-forming bacteria; Class 3 comprises vegetative bacteria and viruses.

Table A7.2 Types of rendering required for different classes of disease

Rendering system	Rendering parameters	Target disease class[a]
A. Batch dry (EU autoclave system)	Standard EU program for mammalian material (133 °C for 20 minutes at a pressure of 3 bar (absolute)); particle size not greater than 50 mm	1, 2 and 3
B. Continuous or batch dry	Typical dry-rendering program with minimum retention time 45 minutes in continuous cooker and minimum retention time 90 minutes in batch cooker, and end point temperature >135 °C	2 and 3
C. Continuous wet (indirect steam drier)	Typical continuous wet-rendering program, including drying for 120 minutes at a product temperature of not less than 110 °C	2 and 3
D. Continuous wet (direct fired)	Standard continuous wet-rendering program, including a direct-fired drying stage where the combustion chamber temperature is not less than 640 °C, the particle size is less than 30 mm × 20 mm × 10 mm, and input meal temperature is >50 °C	2 and 3

EU = European Union

a Class 1 comprises prions (disease agents of TSEs); Class 2 comprises spore-forming bacteria; Class 3 comprises vegetative bacteria and viruses.

Glossary

Manual-specific terms

Term	Full title
On-plant veterinarian	An Authorised Officer under the *Export Control Act 2020*, and employed by the Australian Government Department of Agriculture, Fisheries and Forestry. The on-plant veterinarian will regulate an export abattoir, verifying that food safety procedures are being appropriately applied and that exporting country requirements are being met.
Area technical manager	An Australian Government Department of Agriculture, Fisheries and Forestry employee responsible for the technical supervision of the on-plant management system and the on-plant veterinarians within a defined geographical location.

Standard AUSVETPLAN terms

Term	Definition
Animal coproducts	Products of animal origin that are not for consumption but for further processing (meat, bones, blood, feathers to produce rendered protein meals for animal feed ingredients and fertilisers, oils and tallows) or for industrial use (eg hides and skins, fur, wool, hair and feathers).
Animal Health Committee	A committee whose members are the chief veterinary officers of the Commonwealth, states and territories, along with representatives from the CSIRO Australian Centre for Disease Preparedness (CSIRO-ACDP) and the Australian Government Department of Agriculture, Fisheries and Forestry. There are also observers from Animal Health Australia, Wildlife Health Australia, and the New Zealand Ministry for Primary Industries. The committee provides advice to the National Biosecurity Committee on animal health matters, focusing on technical issues and regulatory policy. *See also* National Biosecurity Committee
Animal products	Meat, meat products and other products of animal origin (eg eggs, milk) for human consumption or for use in animal feedstuff.
Approved disposal site	A premises that has zero susceptible livestock and has been approved as a disposal site for animal carcasses, or potentially contaminated animal products, wastes or things.
Approved processing facility	An abattoir, knackery, milk processing plant or other such facility that maintains increased biosecurity standards. Such a facility could have animals or animal products introduced from lower-risk premises under a permit for processing to an approved standard.
At-risk premises	A premises in a restricted area that contains a live susceptible animal(s) but is not considered at the time of classification to be an

Term	Definition
	infected premises, dangerous contact premises, dangerous contact processing facility, suspect premises or trace premises.
Australian Chief Veterinary Officer	The nominated senior veterinarian in the Australian Government Department of Agriculture, Fisheries and Forestry who manages international animal health commitments and the Australian Government's response to an animal disease outbreak. *See also* Chief veterinary officer
AUSVETPLAN	*Aus*tralian *Vet*erinary Emergency *Plan*. Nationally agreed resources that guide decision making in the response to emergency animal diseases (EADs). It outlines Australia's preferred approach to responding to EADs of national significance, and supports efficient, effective and coherent responses to these diseases.
Carcase	The body of an animal slaughtered for food.
Carcass	The body of an animal that died in the field.
Chief veterinary officer (CVO)	The senior veterinarian of the animal health authority in each jurisdiction (national, state or territory) who has responsibility for animal disease control in that jurisdiction. *See also* Australian Chief Veterinary Officer
Compartmentalisation	The process of defining, implementing and maintaining one or more disease-free establishments under a common biosecurity management system in accordance with WOAH guidelines, based on applied biosecurity measures and surveillance, to facilitate disease control and/or trade.
Compensation	The sum of money paid by government to an owner for livestock or property that are destroyed for the purpose of eradication or prevention of the spread of an emergency animal disease, and livestock that have died of the emergency animal disease. *See also* Cost-sharing arrangements, Emergency Animal Disease Response Agreement
Consultative Committee on Emergency Animal Diseases (CCEAD)	The key technical coordinating body for animal health emergencies. Members are state and territory chief veterinary officers, representatives of CSIRO-ACDP and the relevant industries, and the Australian Chief Veterinary Officer as chair.
Control area (CA)	A legally declared area where the disease controls, including surveillance and movement controls, applied are of lesser intensity than those in a restricted area (the limits of a control area and the conditions applying to it can be varied during an incident according to need).
Cost-sharing arrangements	Arrangements agreed between governments (national and state/territory) and livestock industries for sharing the costs of emergency animal disease responses. *See also* Compensation, Emergency Animal Disease Response Agreement
Dangerous contact animal	A susceptible animal that has been designated as being exposed to other infected animals or potentially infectious products following tracing and epidemiological investigation.

Term	Definition
Dangerous contact premises (DCP)	A premises, apart from an abattoir, knackery or milk processing plant (or other such facility) that, after investigation and based on a risk assessment, is considered to contain a susceptible animal(s) not showing clinical signs, but considered highly likely to contain an infected animal(s) and/or contaminated animal products, wastes or things that present an unacceptable risk to the response if the risk is not addressed, and that therefore requires action to address the risk.
Dangerous contact processing facility (DCPF)	An abattoir, knackery, milk processing plant or other such facility that, based on a risk assessment, appears highly likely to have received infected animals, or contaminated animal products, wastes or things, and that requires action to address the risk.
Declared area	A defined tract of land that is subjected to disease control restrictions under emergency animal disease legislation. There are two types of declared areas: restricted area and control area.
Decontamination	Includes all stages of cleaning and disinfection.
Depopulation	The removal of a host population from a particular area to control or prevent the spread of disease.
Destroy (animals)	To kill animals humanely.
Disease agent	A general term for a transmissible organism or other factor that causes an infectious disease.
Disease Watch Hotline	24-hour freecall service for reporting suspected incidences of exotic diseases – 1800 675 888.
Disinfectant	A chemical used to destroy disease agents outside a living animal.
Disinfection	The application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of animal diseases, including zoonoses; applies to premises, vehicles and different objects that may have been directly or indirectly contaminated.
Disinsectation	The destruction of insect pests, usually with a chemical agent.
Disposal	Sanitary removal of animal carcasses, animal products, materials and wastes by burial, burning or some other process so as to prevent the spread of disease.
Emergency animal disease	A disease that is (a) exotic to Australia or (b) a variant of an endemic disease or (c) a serious infectious disease of unknown or uncertain cause or (d) a severe outbreak of a known endemic disease, and that is considered to be of national significance with serious social or trade implications. *See also* Endemic animal disease, Exotic animal disease
Emergency Animal Disease Response Agreement	Agreement between the Australian and state/territory governments and livestock industries on the management of emergency animal disease responses. Provisions include participatory decision making, risk management, cost sharing, the use of appropriately trained personnel and existing standards such as AUSVETPLAN. *See also* Compensation, Cost-sharing arrangements

Term	Definition
Endemic animal disease	A disease affecting animals (which may include humans) that is known to occur in Australia. *See also* Emergency animal disease, Exotic animal disease
Enterprise	*See* Risk enterprise
Enzyme-linked immunosorbent assay (ELISA)	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.
Epidemiological investigation	An investigation to identify and qualify the risk factors associated with the disease. *See also* Veterinary investigation
Epidemiology	The study of disease in populations and of factors that determine its occurrence.
Exotic animal disease	A disease affecting animals (which may include humans) that does not normally occur in Australia. *See also* Emergency animal disease, Endemic animal disease
Exotic fauna/feral animals	*See* Wild animals
Fomites	Inanimate objects (eg boots, clothing, equipment, instruments, vehicles, crates, packaging) that can carry an infectious disease agent and may spread the disease through mechanical transmission.
General permit	A legal document that describes the requirements for movement of an animal (or group of animals), commodity or thing, for which permission may be granted without the need for direct interaction between the person moving the animal(s), commodity or thing and a government veterinarian or inspector. The permit may be completed via a webpage or in an approved place (such as a government office or commercial premises). A printed or electronic version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. *See also* Special permit
In-contact animals	Animals that have had close contact with infected animals, such as noninfected animals in the same group as infected animals.
Incubation period	The period that elapses between the introduction of a pathogen into an animal and the first clinical signs of the disease.
Index case	The first case of the disease to be diagnosed in a disease outbreak. *See also* Index property
Index property	The property on which the index case is found. *See also* Index case
Infected premises (IP)	A defined area (which may be all or part of a property) on which animals meeting the case definition are or were present, or the causative agent of the emergency animal disease is present, or there is a reasonable suspicion that either is present, and that the relevant chief veterinary officer or their delegate has declared to be an infected premises.

Term	Definition
Local control centre (LCC)	An emergency operations centre responsible for the command and control of field operations in a defined area.
Modified stamping out	A stamping out policy that is modified – based on risk assessment – to culling only a selected group of animals instead of all susceptible animals that are either infected or exposed to the agent of disease. This modified strategy may be implemented when the destruction of all susceptible animals is not financially or practically feasible. The term 'modified' is used when the stamping-out measures are not implemented in full.
Monitoring	Routine collection of data for assessing the health status of a population or the level of contamination of a site for remediation purposes. *See also* Surveillance
Movement control	Restrictions placed on the movement of animals, people and other things to prevent the spread of disease.
National Biosecurity Committee (NBC)	A committee that was formally established under the Intergovernmental Agreement on Biosecurity (IGAB). The IGAB was signed on 13 January 2012, and signatories include all states and territories except Tasmania. The committee provides advice to the Agriculture Senior Officials Committee and the Agriculture Ministers' Forum on national biosecurity issues, and on the IGAB.
National Management Group (NMG)	A group established to approve (or not approve) the invoking of cost sharing under the Emergency Animal Disease Response Agreement. NMG members are the Secretary of the Australian Government Department of Agriculture, Fisheries and Forestry as chair, the chief executive officers of the state and territory government parties, and the president (or analogous officer) of each of the relevant industry parties.
Native wildlife	*See* Wild animals
Operational procedures	Detailed instructions for carrying out specific disease control activities, such as disposal, destruction, decontamination and valuation.
Outside area (OA)	The area of Australia outside the declared (control and restricted) areas.
Owner	Person responsible for a premises (includes an agent of the owner, such as a manager or other controlling officer).
Polymerase chain reaction (PCR)	A method of amplifying and analysing DNA sequences that can be used to detect the presence of viral DNA.
Premises	A tract of land including its buildings, or a separate farm or facility that is maintained by a single set of services and personnel.
Premises of relevance (POR)	A premises in a control area that contains a live susceptible animal(s) but is not considered at the time of classification to be an infected premises, suspect premises, trace premises, dangerous contact premises or dangerous contact processing facility.

Term	Definition
Prevalence	The proportion (or percentage) of animals in a particular population affected by a particular disease (or infection or positive antibody titre) at a given point in time.
Proof of freedom	Reaching a point following an outbreak and post-outbreak surveillance when freedom from the disease can be claimed with a reasonable level of statistical confidence.
Qualifiers	
– assessed negative	Assessed negative (AN) is a qualifier that may be applied to ARPs, PORs, SPs, TPs, DCPs or DCPFs. The qualifier may be applied following surveillance, epidemiological investigation, and/or laboratory assessment/diagnostic testing and indicates that the premises is assessed as negative at the time of classification.
– sentinels on site	Sentinels on site (SN) is a qualifier that may be applied to IPs and DCPs to indicate that sentinel animals are present on the premises as part of response activities (ie before it can be assessed as an RP).
– vaccinated	The vaccinated (VN) qualifier can be applied in a number of different ways. At its most basic level, it can be used to identify premises that contain susceptible animals that have been vaccinated against the EAD in question. However, depending on the legislation, objectives and processes within a jurisdiction, the VN qualifier may be used to track a range of criteria and parameters.
Quarantine	Legally enforceable requirement that prevents or minimises spread of pests and disease agents by controlling the movement of animals, persons or things.
Resolved premises (RP)	An infected premises, dangerous contact premises or dangerous contact processing facility that has completed the required control measures, and is subject to the procedures and restrictions appropriate to the area in which it is located.
Restricted area (RA)	A relatively small legally declared area around infected premises and dangerous contact premises that is subject to disease controls, including intense surveillance and movement controls.
Risk enterprise	A defined livestock or related enterprise that is potentially a major source of infection for many other premises. Includes intensive piggeries, feedlots, abattoirs, knackeries, saleyards, calf scales, milk factories, tanneries, skin sheds, game meat establishments, cold stores, artificial insemination centres, veterinary laboratories and hospitals, road and rail freight depots, showgrounds, field days, weighbridges and garbage depots.
Sensitivity	The proportion of truly positive units that are correctly identified as positive by a test. *See also* Specificity
Sentinel animal	Animal of known health status that is monitored to detect the presence of a specific disease agent.

Term	Definition
Seroconversion	The appearance in the blood serum of antibodies (as determined by a serology test) following vaccination or natural exposure to a disease agent.
Serosurveillance	Surveillance of an animal population by testing serum samples for the presence of antibodies to disease agents.
Serotype	A subgroup of microorganisms identified by the antigens carried (as determined by a serology test).
Serum neutralisation test	A serological test to detect and measure the presence of antibody in a sample. Antibody in serum is serially diluted to detect the highest dilution that neutralises a standard amount of antigen. The neutralising antibody titre is given as the reciprocal of this dilution.
Slaughter	The humane killing of an animal for meat for human consumption.
Special permit	A legal document that describes the requirements for movement of an animal (or group of animals), commodity or thing, for which the person moving the animal(s), commodity or thing must obtain prior written permission from the relevant government veterinarian or inspector. A printed or electronic version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. *See also* General permit
Specificity	The proportion of truly negative units that are correctly identified as negative by a test. *See also* Sensitivity
Stamping out	The strategy of eliminating infection from premises through the destruction of animals in accordance with the particular AUSVETPLAN manual, and in a manner that permits appropriate disposal of carcasses and decontamination of the site.
State coordination centre (SCC)	The emergency operations centre that directs the disease control operations to be undertaken in a state or territory.
Surveillance	A systematic program of investigation designed to establish the presence, extent or absence of a disease, or of infection or contamination with the causative organism. It includes the examination of animals for clinical signs, antibodies or the causative organism.
Susceptible animals	Animals that can be infected with a particular 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, is warranted. or An animal not known to have been exposed to a disease agent but showing clinical signs requiring differential diagnosis.
Suspect premises (SP)	Temporary classification of a premises that contains a susceptible animal(s) not known to have been exposed to the disease agent but showing clinical signs similar to the case definition, and that therefore requires investigation(s).

Term	Definition
Swill	Also known as 'prohibited pig feed', means material of mammalian origin, or any substance that has come in contact with this material, but does not include: (i) Milk, milk products or milk by-products either of Australian provenance or legally imported for stockfeed use into Australia. (ii) Material containing flesh, bones, blood, offal or mammal carcases which is treated by an approved process.[1] (iii) A carcass or part of a domestic pig, born and raised on the property on which the pig or pigs that are administered the part are held, that is administered for therapeutic purposes in accordance with the written instructions of a veterinary practitioner. (iv) Material used under an individual and defined-period permit issued by a jurisdiction for the purposes of research or baiting. [1] In terms of (ii), approved processes are: 11. rendering in accordance with the 'Australian Standard for the Hygienic Rendering of Animal Products' 12. under jurisdictional permit, cooking processes subject to compliance verification that ensure that a core temperature of at least 100 °C for a minimum of 30 minutes, or equivalent, has been reached. 13. treatment of cooking oil, which has been used for cooking in Australia, in accordance with the 'National Standard for Recycling of Used Cooking Fats and Oils intended for Animal Feeds' 14. under jurisdictional permit, any other nationally agreed process approved by AHC for which an acceptable risk assessment has been undertaken and that is subject to compliance verification. The national definition is a minimum standard. Some jurisdictions have additional conditions for swill feeding that pig producers in those jurisdictions must comply with, over and above the requirements of the national definition.
Swill feeding	Also known as 'feeding prohibited pig feed', it includes: • feeding, or allowing or directing another person to feed, prohibited pig feed to a pig • allowing a pig to have access to prohibited pig feed • the collection and storage or possession of prohibited pig feed on a premises where one or more pigs are kept • supplying to another person prohibited pig feed that the supplier knows is for feeding to any pig. This definition was endorsed by the Agriculture Ministers' Council through AGMIN OOS 04/2014.

Term	Definition
Trace premises (TP)	Temporary classification of a premises that contains susceptible animal(s) that tracing indicates may have been exposed to the disease agent, or contains contaminated animal products, wastes or things, and that requires investigation(s).
Tracing	The process of locating animals, people or other items that may be implicated in the spread of disease, so that appropriate action can be taken.
Unknown status premises (UP)	A premises within a declared area where the current presence of susceptible animals and/or risk products, wastes or things is unknown.
Vaccination	Inoculation of individuals with a vaccine to provide active immunity.
Vaccine	A substance used to stimulate immunity against one or several disease-causing agents to provide protection or to reduce the effects of the disease. A vaccine is prepared from the causative agent of a disease, its products or a synthetic substitute, which is treated to act as an antigen without inducing the disease.
– adjuvanted	A vaccine in which one or several disease-causing agents are combined with an adjuvant (a substance that increases the immune response).
– attenuated	A vaccine prepared from infective or 'live' microbes that are less pathogenic but retain their ability to induce protective immunity.
– gene deleted	An attenuated or inactivated vaccine in which genes for non-essential surface glycoproteins have been removed by genetic engineering. This provides a useful immunological marker for the vaccine virus compared with the wild virus.
– 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 *biological* vector is one in which the infectious agent must develop or multiply before becoming infective to a recipient host. A *mechanical* vector is one that transmits an infectious agent from one host to another but is not essential to the life cycle of the agent.
Veterinary investigation	An investigation of the diagnosis, pathology and epidemiology of the disease. *See also* Epidemiological investigation
Viraemia	The presence of viruses in the blood.
Wild animals	
– native wildlife	Animals that are indigenous to Australia and may be susceptible to emergency animal diseases (eg bats, dingoes, marsupials).

Term	Definition
– feral animals	Animals of domestic species that are not confined or under control (eg cats, horses, pigs).
– exotic fauna	Nondomestic animal species that are not indigenous to Australia (eg foxes).
WOAH Terrestrial Code	WOAH *Terrestrial animal health code*. Describes standards for safe international trade in animals and animal products. Revised annually and published on the internet at: www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access
WOAH Terrestrial Manual	WOAH *Manual of diagnostic tests and vaccines for terrestrial animals*. Describes standards for laboratory diagnostic tests, and the production and control of biological products (principally vaccines). The current edition is published on the internet at: www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access
Wool	Sheep wool.
Zero susceptible species premises (ZP)	A premises that does not contain any susceptible animals or risk products, wastes or things.
Zoning	The process of defining, implementing and maintaining a disease-free or infected area in accordance with WOAH guidelines, based on geopolitical and/or physical boundaries and surveillance, to facilitate disease control and/or trade.
Zoonosis	A disease of animals that can be transmitted to humans.

Abbreviations

Manual-specific abbreviations

Abbreviation	Full title
FMD	foot-and-mouth disease
IPSS	infected premises site supervisor
NLIS	National Livestock Identification System
NVD	National Vendor Declaration

Standard AUSVETPLAN abbreviations

Abbreviation	Full title
ACDP	Australian Centre for Disease Preparedness
AN	assessed negative
APF	approved processing facility
ARP	at-risk premises
AUSVETPLAN	Australian Veterinary Emergency Plan
CA	control area
CCEAD	Consultative Committee on Emergency Animal Diseases
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CVO	chief veterinary officer
DCP	dangerous contact premises
DCPF	dangerous contact processing facility
EAD	emergency animal disease
EADRA	Emergency Animal Disease Response Agreement
EADRP	Emergency Animal Disease Response Plan
EDTA	ethylenediaminetetraacetic acid (anticoagulant for whole blood)
ELISA	enzyme-linked immunosorbent assay
GP	general permit
IETS	International Embryo Technology Society
IP	infected premises
LCC	local control centre

Abbreviation	Full title
NASOP	nationally agreed standard operating procedure
NMG	National Management Group
OA	outside area
PCR	polymerase chain reaction
POR	premises of relevance
RA	restricted area
RP	resolved premises
SCC	state coordination centre
SP	suspect premises
SpP	special permit
TP	trace premises
UP	unknown status premises
WOAH	World Organisation for Animal Health
ZP	zero susceptible species premises

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