FARMED ANIMAL MASS CARCASS DISPOSAL EMERGENCY PLAN

for the

SQUAMISH-LILLOOET
REGIONAL DISTRICT

Version 1
March 2009

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for the

SQUAMISH-LILLOOET REGIONAL DISTRICT

This plan was developed under the provisions of the
UBCM Farmed Animal Mass Carcass Disposal Project
Emergency Planning Program

by

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RECORD OF AMENDMENTS

Date	Amendment No.	Entered By

CARCASS DISPOSAL EMERGENCY QUICK REFERENCE DIRECTORY

SQUAMISH-LILLOOET REGIONAL DISTRICT

Emergency Planning Coordinator
604-698-6442

PROVINCIAL EMERGENCY PROGRAM

Provincial Emergency Coordination Centre
(24 hours)
1-800-663-3456

BC MINISTRY OF AGRICULTURE AND LANDS

Resource Management Branch, Waste Management Engineer
604-556-3100
Regional Agrologists
Kamloops or Kelowna (for SLRD North) Note 1
250-371-6050 or 250-861-7681
Abbotsford (for SLRD South)
604-556-3045

BC MINISTRY OF ENVIRONMENT

Environmental Emergency Management Program
250-387-8319
Lower Mainland Regional Office
604-582-5200

CANADIAN FOOD INSPECTION AGENCY

Vernon District Office (for SLRD North)
250-260-5018
Vancouver/Richmond Sub-District Office (for SLRD South)
604-666-7042

Note 1: For the purposes of this plan, SLRD North is comprised of Electoral Areas A and B and SLRD South is comprised of Electoral Areas C and D.

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OVERVIEW
RESPONSIBILITIES FOR CARCASS DISPOSAL

LOCAL LIVESTOCK INDUSTRIES

Local livestock industries are the *first line responders* in a carcass disposal emergency. Producers are required to manage routine animal mortality and should have emergency plans for mass carcass disposal.

When mass carcass disposal is related to an animal disease emergency, or is beyond industry's capability to manage, producers cooperate with all levels of government to ensure an effective response.

LOCAL GOVERNMENTS

Local governments should have emergency plans for carcass disposal and will cooperate with provincial agencies to manage carcass disposal emergencies caused by events other than an animal disease.

When a carcass disposal emergency involves an animal disease, or is too large to be managed locally, the local government participates in an expanded response in conjunction with other levels of government.

GOVERNMENT OF BRITISH COLUMBIA

The Provincial Emergency Program (PEP), in conjunction with the Ministry of Agriculture and Lands and the Ministry of Environment, will provide support to local governments for planning and responding to carcass disposal emergencies. When a local government EOC opens in response to a carcass disposal emergency, PEP will activate and provide support appropriate to the situation.

When a carcass disposal emergency is the result of an animal disease, the provincial government will normally participate in a joint federal-provincial response in accordance with the *Foreign Animal Disease Emergency Support Plan*.

GOVERNMENT OF CANADA

Foreign animal diseases fall into the federal arena of legislated authority and responsibility. When a carcass disposal emergency is the result of a transmissible animal disease the federal government, through the Canadian Food Inspection Agency, will initiate and lead a joint federal-provincial response, in accordance with the *Foreign Animal Disease Emergency Support Plan*.

COLLECTIVE RESPONSIBILITY

The complex nature of carcass disposal operations require that all levels of government and local livestock industries work together to resolve the situation quickly and efficiently, with minimum risk to human health and the environment.

Glossary

Composting
Carcass composting is a natural biological decomposition process that takes place in the presence of oxygen (air).

Control Area
A geographical area that is legally defined in a Ministerial declaration and which is subject to specified activities to contain and/or eradicate a Foreign Animal Disease outbreak. A Control Area includes an Infected Zone, a Restricted Zone and a Security Zone.

Disaster
A calamity caused by accident, intent, fire, explosion or technical failure, or by the forces of nature, which results in serious harm to the health, safety or welfare of people, the environment, or in widespread damage to property.

Disposal Protocols
The Resource Management Branch of the BC Ministry of Agriculture and Lands has developed draft protocols that can be used to create situation-specific action plans for disposal. MAL personnel can query the MAL Q drive for the latest approved disposal protocols.

Emergency
A present or imminent event caused by accident, intention, fire, explosion or technical failure, or by the forces of nature which requires prompt coordination of action or special regulation of persons or property to protect the health, safety or welfare of people or to limit damage to property.

Farmed Animals
For the purposes of this plan, farmed animals include alpacas, cattle, donkeys, fur farmed animals, goats, horses, llamas, mules, poultry, rabbits, sheep and swine.

Foreign Animal Disease Emergency
A situation of an outbreak of a foreign animal disease requiring immediate action to contain, control and eradicate the disease. The measures to be taken include tracing the origin of the disease and limiting its spread by slaughtering of infected livestock, disposal of carcasses, infected products, cleaning and disinfecting of infected premises and controlling the transportation of animals.

Foreign Animal Disease Emergency Support (FADES) Plan
A plan which provides an agreement whereby federal and provincial agencies accept responsibilities for a collaborative response to a reportable or foreign animal disease event in BC.

Hazard
A source of potential harm, or a situation with a potential for causing harm in terms of human injury, damage to health, property, the environment or some combination of these.

Infected Place
A legal term for premises that have been declared as infected places by an inspector and consequently restrictions have been imposed limiting the movement of animals, animal products and things. A declared infected place may be an infected premise, exposed premise, contact premise, or more simply premises that have been declared infected because of their close proximity to positive premises that are suspected of having an infection. Distinction may be made by stating suspect infected place versus positive infected place.

Infected Zone
A geographic area that includes all positive infected premises. Depending on the disease, the perimeter of the infected zone shall extend a minimum of three kilometers beyond all known infected premises and shall follow, when possible, natural barriers and roadways to facilitate implementation of disease control procedures.

Livestock
The term *livestock* in BC includes alpacas, aquaculture animals, cattle, donkeys, fur farmed animals, game farmed animals, goats, horses, llamas, mules, musk oxen, poultry, rabbits, sheep, swine and other exotic animals as prescribed by the Minister of Agriculture and Lands.

Local Authority
Defined by the BC Emergency Program Act to include:
- for a municipality, the municipal council; and
- for an electoral area in a regional district, the board of the regional district.

Movement Control
The primary process of reducing the spread of a foreign animal disease, as most diseases spread by contact with infected or contaminated animals, animal product, by-products, feeds and items used to feed and care for animals. The movement of all pertinent animals or things within the prescribed area may be tracked, monitored and controlled through a permit system.

Office International des Epizooties (OIE)
The OIE is an intergovernmental organization created by international agreement. The 28 member countries undertake to report the animal diseases detected on their territory. The OIE then disseminates the information to other countries, which can take the necessary preventive action.

Pathogen
Any organism capable of producing disease or infection. Often found in waste material, most pathogens are killed by high temperatures.

Pre-emptive Slaughter
Depopulation of susceptible animal species in herds or flocks on premises that have been exposed to infection by direct animal-to-animal contact, or by indirect contact of a kind likely to cause the transmission of a disease virus.

Rendering
The breaking down of animal tissues into constituent fat and protein elements by the application of heat, pressure or other means.

Restricted Zone
An area measured from the infected premises and surrounding the Infected Zone. The boundaries will be determined by physical and geographical features.

Security Zone
The geographic area between the outer perimeter of the Infected and Restricted Zone(s) to the edge of the Control Area.

Specified Risk Material
The skull, brain, trigeminal ganglia (nerves attached to the brain, eyes, tonsils, spinal cord) and dorsal root ganglia (nerves attached to the spinal cord) of cattle aged 30 months or older, and the distal ileum (portion of the small intestine) of cattle of all ages.

Surveillance Zone
A geographic area that extends from the perimeter of an infected zone to a minimum of ten kilometers from any infected premise or to the outer perimeter of a control area.

Zoonosis
Any disease that can be transmitted to humans from animals.

Acronyms / Abbreviations

AAR	After Action Report
ALR	Agricultural Land Reserve
BCAS	British Columbia Ambulance Service
BCERMS	British Columbia Emergency Response Management System
CCG	Central Coordination Group
CFIA	Canadian Food Inspection Agency
EA	Electoral Area
EOC	Emergency Operations Centre
FAD	Foreign Animal Disease
FADES	Foreign Animal Disease Emergency Support
INAC	Indian and Northern Affairs Canada
JEOC	Joint Emergency Operations Centre
MAL	Ministry of Agriculture and Lands
MOE	Ministry of Environment
MoHS	Ministry of Health Services
MOT	Ministry of Transportation and Infrastructure
PAB	Public Affairs Bureau
PEP	Provincial Emergency Program
PREOC	Provincial Regional Emergency Operations Centre
SLRD	Squamish-Lillooet Regional District
SRM	Specified Risk Material
VCHA	Vancouver Coastal Health Authority

1. Introductory Material

1.1 Purpose and Scope

The primary purpose of this plan is to guide the response within the SLRD for dealing with mass animal carcasses generated in an emergency. The plan is designed to enhance the district's capacity to recover quickly from a mass animal carcass emergency and reduce the impact on the local agriculture industry.

A corollary purpose of the plan is to provide a source of local information related to a carcass disposal emergency which may be used by federal, provincial and local agencies that participate in an expanded response to a carcass disposal emergency. This information includes a profile of animal farming sites and activities in the SLRD, and a list of resources and capabilities which may be utilized in an emergency response.

The scope of this plan includes:

a) a description of the agriculture in the SLRD with emphasis on local farmed animal populations;
b) identification of hazards and vulnerabilities that could result in a mass carcass disposal emergency situation in the district area;
c) a concept of operations for disposal operations;
d) approved methodologies for mass carcass disposal;
e) identification of disposal resources and key personnel required to respond to an emergency situation;
f) activities that must be performed in the event of a mass carcass disposal emergency;
g) identification of resources required and available;
h) identification of resource shortfalls; and
i) a framework for post-emergency recovery.

The plan is designed for the SLRD jurisdictional area only and does not include the municipalities of Squamish, Whistler, Pemberton and Lillooet. However, all livestock within the SLRD area is considered when calculating livestock totals within the regional district.

1.2 Responsibility for the Plan

This plan will be maintained by the SLRD Emergency Planning Coordinator. The plan should be reviewed in its entirety and updated every second year in concert with routine reviews of emergency plans.

1.3 Authorities

Disposal of animal carcasses is governed by a number of federal and provincial regulations. Principal among these are:

Federal

a) Emergency Preparedness Act
b) Emergencies Act
c) Health of Animals Act
d) Health of Animals Regulations

Provincial

a) Animal Disease Control Act
b) Animal Disease Control Regulation
c) Emergency Program Act
d) Emergency Management Regulation
e) Environmental Management Act
f) Health Act
g) Local Authority Emergency Management Regulation

Foreign animal diseases fall into the federal arena of legislated authority and responsibility. The Government of Canada considers such diseases a threat to national security and, through the Canadian Food Inspection Agency (CFIA), leads response efforts to control disease outbreaks. However, it is recognized that no single federal agency can manage the risks from these diseases and response plans require all levels of government to work together along with local livestock industries.

1.4 Requirement for the Plan

Section 2(1) of the *BC Local Authority Emergency Management Regulation –1995* requires local authorities to prepare emergency plans that reflect the local authority's assessment of the relative risk of occurrence and the potential impact on people and property of the emergencies or disasters that could affect all or any part of the jurisdictional area for which the local authority has responsibility.

The desirability of having a carcass disposal plan at the local government level is set out in the *Ministry of Agriculture and Lands Emergency Response Plan 2006*, which states in part:

> *"BC local authorities should have emergency plans to deal with livestock mortalities from livestock disease outbreaks, as well as to address dead stock arising from natural disasters such as floods, fires and earthquakes.*
>
> *Local plans should allow for timely and efficient disposal of dead stock so as to minimize impacts on human, environmental and livestock health. Local*

authorities should take into account animal-related threats to human health and the environment; identify resources and key personnel to deal with the threats; identify methods of utilizing resources; and outline activities that must be performed in the event of an emergency".

1.5 Related Plans

This emergency plan is related to other plans, the most important of which are:

a) SLRD Emergency Response and Recovery Plan;
b) Emergency Response Plan for BC MAL, 2006; and
c) FADES – Foreign Animal Disease Emergency Support Plan (2008 Interim Plan)

1.6 SLRD Emergency Structure

The overall emergency management structure within the SLRD is as follows:

a) Electoral Areas.

- The electoral areas are jurisdictional areas in accordance with the *Emergency Program Act*. The SLRD is both the local government and the local authority for the electoral areas.
- The SLRD Emergency Response and Recovery Plan covers the electoral areas.

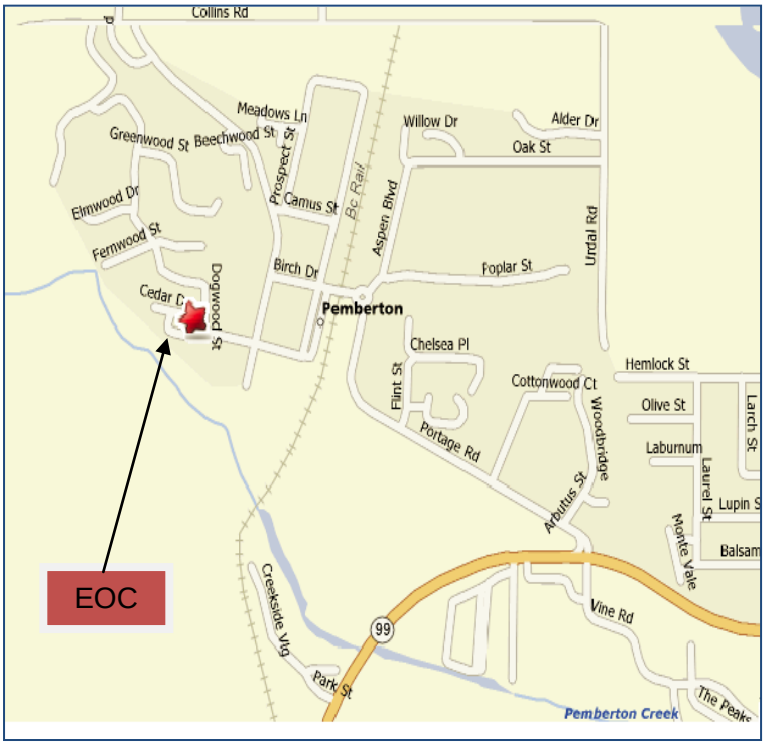
b) Municipalities.

- The four municipalities within the SLRD have their own local governments and each is a local authority in accordance with the *Emergency Program Act*.
- Municipalities are responsible for the development of an emergency plan for their own jurisdictional areas and do not fall within the scope of this plan.
- In large scale emergencies the SLRD will cooperate closely the municipalities of Squamish, Whistler, Pemberton and Lillooet.

1.7 EOC Location

The location of the SLRD primary EOC is shown below.

SLRD Primary EOC



1350 Aster Street
Pemberton, BC

Alternate EOC: If the primary site is unusable, the EOC may be convened at the Pemberton Community Centre (former high school). The Emergency Program Coordinator will post a notice giving directions to the alternate EOC if required.

If an emergency affects large areas within the SLRD jurisdiction, the SLRD anticipates joint use of municipal EOCs in Squamish, Whistler, Pemberton and Lillooet.

1.8 Activation of Plan

The requirement to activate this plan will be determined by the SLRD Chief Administration Officer in consultation with PEP and MAL.

FOR ACTIVATION OF THIS PLAN, CONSULT WITH:

Provincial Emergency Program
1-800-663-3456 (24 hours)

Ministry of Agriculture and Lands
604-556-3100 (Business hours)

Appendix 1 to Section 1
SLRD Area Map

SQUAMISH-LILLOOET REGIONAL DISTRICT

The SLRD is comprised of four electoral areas (A,B,C,D) as indicated on the map. There are four member municipalities: Squamish, Whistler, Pemberton and Lillooet. Although this plan does not apply directly to the four municipalities, livestock located within the entire region has been considered when calculating SLRD totals and the resource requirements for a carcass disposal emergency.

2. Local Area Data

2.1 Local Agricultural Profile

The SLRD stretches from Porteau Cove in the south to Pavilion in the north. The district covers 16,354 km² (6,314 sq mi) of land area within a rugged, mountainous region of southwest BC, straddling the Coast Mountains.

The district has four Electoral Areas: A,B,C and D. Electoral Areas A and B form the northeast sector of SLRD and Electoral Areas C and D form the southwest sector. The two sectors have different geographic, climatic and agricultural characteristics.

In the northeast, Electoral Area A comprises the basin of the Bridge River valley above its confluence with the Yalakom River at Moha. Electoral Area B comprises the basin of the Bridge River below its confluence with the Yalakom River at Moha, the valley of Seton and Anderson Lakes (excepting D'Arcy), and the rest of the upper portion of the SLRD surrounding Lillooet and adjoining parts of the Fraser Canyon.

Much of Electoral Areas A and B lies northeast of the Coast Mountains and the Cadwallader range, and is part of the Nechako-Fraser-Thompson plateau. The municipality of Lillooet is the principal urban centre.

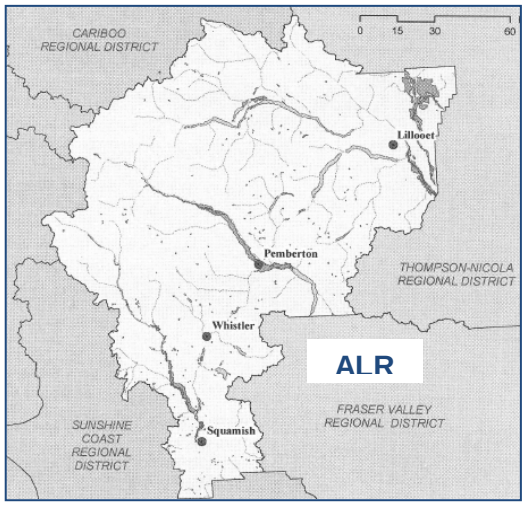
In the southwest, Electoral Area C is comprised of the Pemberton and Gates Valleys and the valley of the Green River north of Whistler. Electoral Area D comprises the valleys of the Cheakamus and Squamish Rivers and the Sea-to-Sky Corridor south to the SLRD boundary on Howe Sound.

Electoral Areas C and D are located on the southwest side of the Cadwallader range and in the Coast Mountain physiographic region. The southwest sector of the district is slightly larger than the northeast and is more densely populated.

Flooding is a hazard under certain conditions, particularly in the Squamish, Cheakamus and Lillooet River floodplains. However, there is no historical record of floods having caused significant livestock mortality.

The district's geographic distinctions result in variable climate regimes. The daily mean temperature is 7ºC in the southwest and 8.7ºC in the northeast, and average frost free days are 90 in the southwest and 110 in the northeast. Total annual precipitation is 990.2 mm in the southwest and 286.5 mm in the northeast.

The ALR in the district is largely in three distinct areas – the Squamish River valley, the Pemberton valley and around Lillooet, particularly in the vicinity of Pavilion. The majority of agricultural production is found in the Pemberton Valley near the Village of Pemberton, however the majority of livestock operations are in the southwest. The ALR accounts for about 1.5% of the SLRD jurisdictional area.



Livestock operations in the SLRD are diverse, with numerous small farms and several medium-sized commercial livestock operators. Cattle operations have the largest number of farms (52). Other significant operations include horse farms (50) and poultry farms (41). There are small numbers of sheep and pig farms, and some specialty farming.

The majority of cattle farms are in the southwest sector, however the number of animals in the two sectors is approximately equal as the farms in the northeast are larger. Horse farms are distributed between the two sectors, with the southwest having moderately more horses and farms than the northeast. The southwest sector contains the majority of poultry operations.

A summary of farms and the number of animals reported in the SLRD is shown below:

Species	No. of Farms	No. of Animals
Cattle and calves	52	5,390
Sheep and lambs	8	259
Poultry (all types)	41	1,277
Horses and Ponies	50	358
Pigs	5	34
Goats	3	23
Llamas and Alpacas	8	84

Note: Agricultural data is from Statistics Canada Census 2006, Agriculture Community Profiles. The number of farms in the table exceeds the district total, as many farms support more than one livestock species.

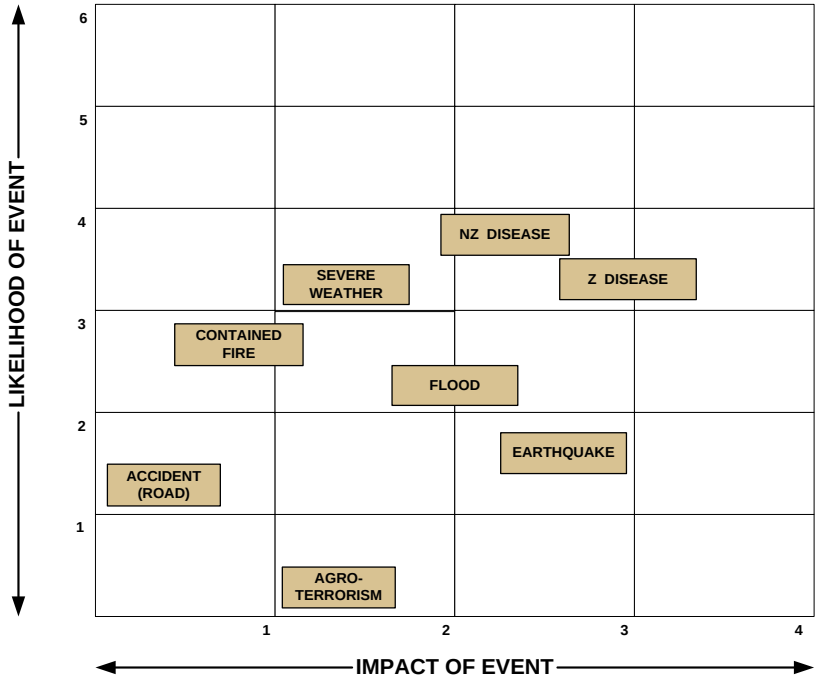
Calculation of volume and mass by species is at Appendix 1 to this section. Additional data and maps showing livestock distribution within the SLRD are at Appendices 2 and 3.

Additional data for the area may be found in *Squamish-Lillooet Regional District – Agriculture in Brief,* published by the Ministry of Agriculture and Lands, available on line at:

http://www.al.gov.bc.ca/resmgmt/sf/agbriefs/Squamish-Lillooet.pdf

2.2 Risk Profile

The risk profile for farmed animal mass mortality in the SLRD is illustrated below (see Note 1):



Note 1: The grid illustrates the likelihood of specified hazards causing mass animal mortality and the relative impact of the event. (Z = Zoonotic, NZ = Non-Zoonotic). For further information on the grid see: http://www.pep.bc.ca/hrva/toolkit.html

2.3 History of Mass Animal Mortality in the SLRD

There is no record of animal mortality in the SLRD causing a carcass disposal emergency.

2.4 Commodity and Advisory Groups / Organizations

A list of livestock producer associations and agricultural advisory groups is at Appendix 4 to this section.

The MAL has established agriculture advisory teams (Agri-teams) to support local governments throughout the province with

agricultural concerns or issues. These teams can assist with farmed animal producer contact information and will be key advisors in a carcass disposal emergency. The principal contacts for the SLRD are:

SLRD North
(Electoral Areas A and B)

Regional Agrologist
162 Oriole Road
Kamloops, BC V2C 4N7
250-371-6050
and/or
Regional Agrologist
200-1690 Powick Road
Kelowna, BC V1X 7G5
604-556-3045

SLRD South
(Electoral Areas C and D)

Regional Agrologist
1767 Angus Campbell Way
Abbotsford, BC V3G 2M3
604-556-3045

Current contact information for all MAL Agri-team members may be found at: www.al.gov.bc.ca/resmgmt/sf/contacts.htm

A further source of current farmed animal producer location and contact information can be derived from data generated under the premises ID and traceability programs being undertaken by the CFIA, MAL and key producer associations. The information provided by these initiatives is confidential and only to be used in an emergency.

The premises ID/traceability initiative contact information is as follows:

DAIRY
BC Milk Producer's Association **3236 Beta Avenue** **Burnaby, BC V5G 4K4** **604-294-3737 or 1-877-462-2672** contactus@bcmilkproducers.ca

POULTRY
BC Chicken Marketing Board **101-32450 Simon Avenue** **Abbotsford, BC V2T 4J2** **604-859-6828** info@bcchicken.ca
BEEF
BC Cattlemen's Association **#4-10145 Dallas Drive** **Kamloops, BC V2C 6T4** **250-573-3611** info@cattlemen.bc.ca

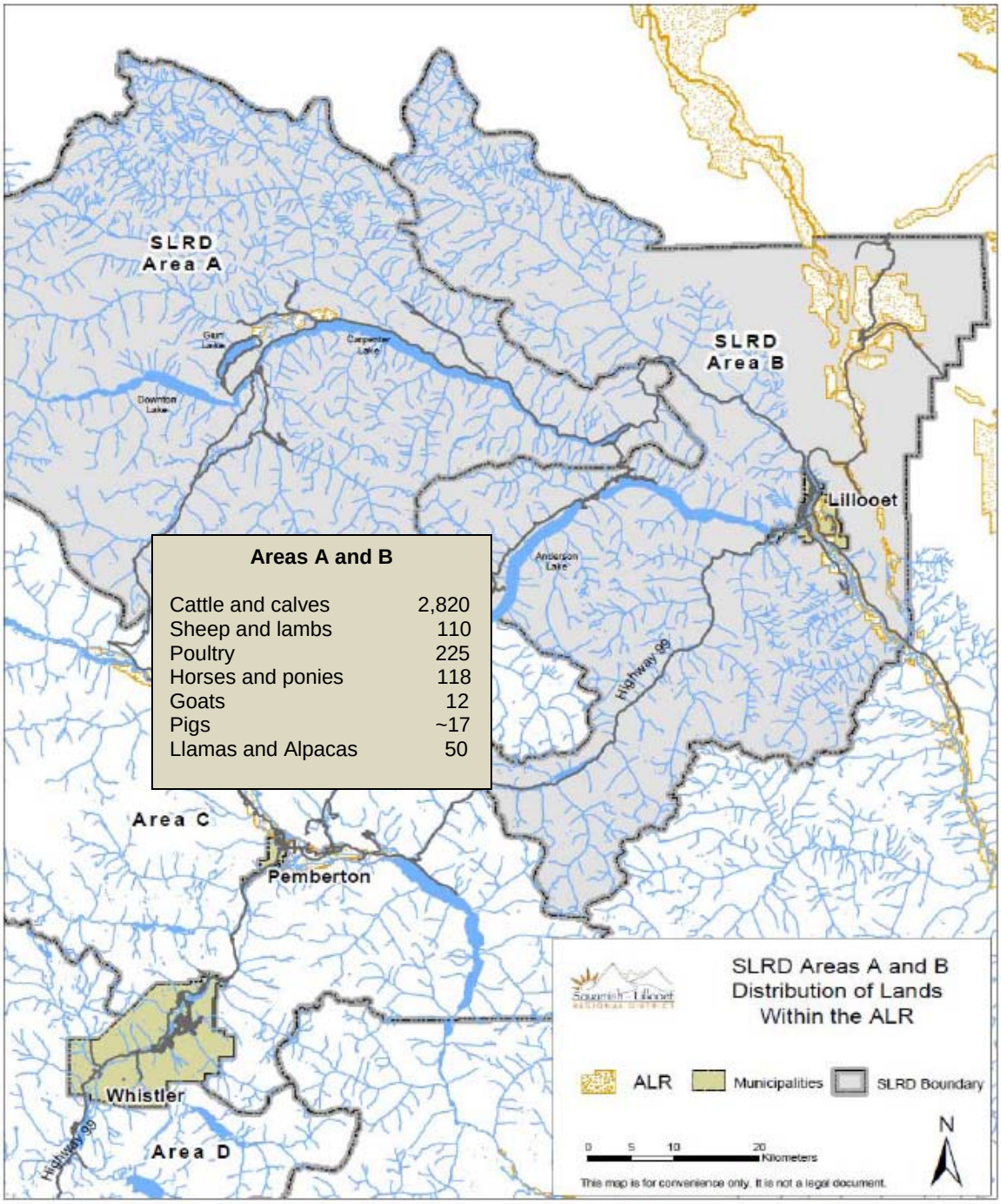
Appendix 1 to Section 2
SLRD – Calculation of Farmed Animal Volume and Mass by Species

Livestock	Number of Head (1)	Average Mass (kg) (2)	Total Mass (tonnes) (3)	Volume Factor (cu metres) (2)	Total Volume (cu metres) (4)
Hens and Chickens	1,037	~1.65	1.71	.015	16
Turkeys	40	5	0.2	.0375	2
Other Poultry	200	~2.5	0.50	.019	4
Total	**1,277**		**2.11**		**22**
Cows (Dairy and Beef)	2,457	635	1,560.2	1.5	3,686
Bulls >1 year old	107	727	77.8	1.5	160
Steers >1 year old	304	635	193.0	1.5	456
Heifers	573	455	260.7	1.0	573
Calves	1,949	210	409.2	0.5	975
Total	**5,390**		**2,500.9**		**5,850**
Pigs	34	200	53.4	0.375	**13**
Sheep and lambs	259	80	131.6	0.3	**78**
Horses and ponies	358	523	330.5	1.5	**537**
Goats	23	80	11.9	0.3	**7**
Llamas and Alpacas	84	75	30.1	0.6	**50**

Notes:

1 Number of head is derived from Statistics Canada Census 2006 – Agriculture Community Profiles.
2 The average mass and volume factors for each livestock category are per CFIA publication, *Mass Slaughter and Disposal of Livestock, Rural Municipality of Hanover, Manitoba, Information Book, July 21, 2006 (Draft)*.
3 The total mass calculation is based on the average livestock weight in kilograms multiplied by the number of head. This is converted to metric tonnes by multiplying the total weight in kilograms by the conversion factor 0.001.
4 The total volume is the space required for burial based on the number of head multiplied by the volume factor. The volume factors were derived from the number of head that would equal one adult bovine unit, requiring 1.5 cubic metres of space for burial. To calculate pit dimensions, the following can be used for a rule-of-thumb: 1 bovine unit = 5 adult sheep = 4-5 mature swine = 100 mature chickens = 40 mature turkeys.

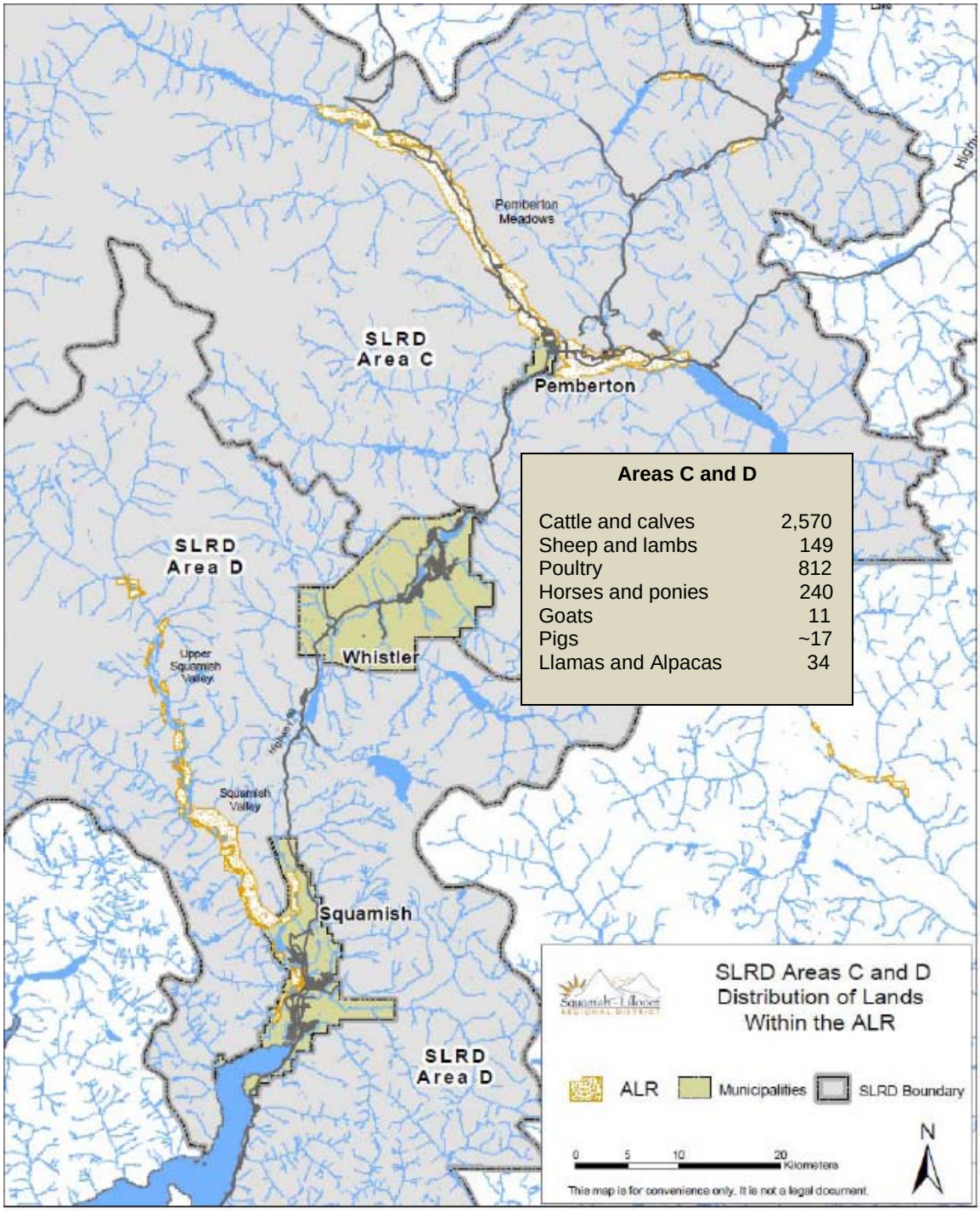
Appendix 2 to Section 2
Livestock Profile – SLRD North
(Electoral Areas A and B)



Areas A and B

Cattle and calves	2,820
Sheep and lambs	110
Poultry	225
Horses and ponies	118
Goats	12
Pigs	~17
Llamas and Alpacas	50

Appendix 3 to Section 2
Livestock Profile – SLRD South
(Electoral Areas C and D)



Appendix 4 to Section 2
Livestock Commodity and Advisory Groups

BC Poultry Association 1839 Mt Lehman Road Abbotsford, BC V2T 6H6 604-864-6400 rnickel@shaw.ca	BC Cattlemen's Association 4-10145 Dallas Drive Kamloops, BC V2C 6T4 250-573-3611
Horse Council of BC 2669 Deacon St. Abbotsford, BC V2T 6H3 604-856-4304	BC Sheep Federation 2881 Mountain Road Duncan, BC V9L 6N4 250-295-6419
BC Goat Breeders' Association 30854 Olund Road Mt Lehman, BC V4X 1Z9 604-854-6261	BC Turkey Growers' Association 19329 Enterprise Way Surrey, BC V3S 6J8 604-534-5644 smallory@bcturkey.com
BC Dairy Council 7000 Blackwell Road Kamloops, BC V2C 6V7 250-573-4747 http://www.bcdairycouncil.ca/	BC Milk Producers' Association 3236 Beta Avenue Burnaby, BC V5G 4K4 604-294-3775 contactus@bcmilkproducers.ca
BC Pork Producers' Association 2010 Abbotsford Way Abbotsford, BC V2S 6X8 604-853-9461	BC Llama and Alpaca Association 1045 – 165th Street White Rock, BC V4P 2P3 604-541-4141
BC Specialty Birds Association Ken Falk 604-854-6776 info@bcspa.com	BC Chicken Growers' Association PO Box 581, Abbotsford, BC V2S 6R7 604-859-9332
First Nations Agricultural Association 408 Paul Lake Road Kamloops, BC V2H 1J8 250-314-6809 http://www.fnala.com/	Investment Agriculture Foundation 3rd Floor, 808 Douglas Street Victoria, BC V8W 2Z7 250-356-1662 info@iafbc.ca

Additional information on livestock associations and other provincial agriculture organizations is available through the BC Agriculture Resource Guide at: http://www.agridigest.com/guide/ResourceGuide.pdf.

3. Concept of Operations

3.1 General

Mortality losses are a normal part of livestock production. Producers may have losses due to disease, natural events such as extreme weather, fires, accidents or inter-animal competition. It is the responsibility of the producer to dispose of these routine mortalities in an acceptable manner. Industry and primary producers are responsible for developing their own plans for carcass disposal.

In intensive livestock operations such as poultry farming, the disposal of large numbers of carcasses caused, for example, by loss of ventilation due to power failure during severe hot weather, may be considered routine. Mass carcass disposal will only become an emergency if the scale and extent of farmed animal mortality is beyond the capability of local producers, results from an animal disease or if there is a significant risk to public health.

The primary objectives of a carcass disposal operation are to prevent the dissemination of infection and to protect the environment. This process is therefore an essential part of an animal disease eradication program and is important from both a public health and environmental perspective.

Potential causes of mass farmed animal mortality range from natural disasters to more complex situations involving infectious diseases. Notwithstanding the cause, timely and effective local response is essential in order to limit impact on the industry and community, and to allow for the mobilization of resources locally and from other levels of government if required.

The efficient and environmentally safe disposal of mass animal carcasses will require:

a) early notification;
b) an estimate of the scale of carcass disposal required;
c) the selection of an appropriate disposal methodology;
d) the availability of suitable disposal sites; and
e) the timely provision of applicable resources.

3.2 Operational Context

Emergency planning for mass livestock carcass management anticipates a cooperative partnership between local livestock producers, local authorities, the province and CFIA. While producers will take the lead role in any livestock emergency, local authorities are expected to manage a consultative framework that allows for a timely and efficient approach to the emergency.

There are few circumstances in which a carcass disposal emergency will exist independently of a larger emergency or disaster situation. The circumstance that caused the animal mortality, e.g. a foreign animal disease or a natural disaster such as a flood, will frequently in itself trigger an emergency response. Carcass disposal therefore, will normally be a component of a larger emergency situation and will fit into the existing response and recovery structure.

There are two categories of response applicable to a mass animal mortality emergency:

Non-Disease Response
When a carcass disposal emergency is caused by mass animal mortality from natural or man-made disasters, carcass disposal operations will, to the extent possible, be managed by individual producers in cooperation with the local livestock industry. If the scale of the carcass disposal requirement exceeds the capacity of individual producers/industry or there are public health or environmental concerns, local government will be required to provide emergency management support, resources and coordination. Depending on the scale of the emergency, a local government EOC may have to be activated. In such cases, PEP will activate and provide an appropriate level of direction and assistance under the provincial integrated response structure.

Animal Disease Response
In mass farmed animal mortality events involving an animal disease, the carcass disposal operation will be managed within an expanded response structure involving other levels of government in accordance with the joint federal-provincial FADES Plan, or as otherwise considered necessary by CFIA. The scale of response will depend on a variety of factors such as the type and severity of the disease, risk of transmission, risk to human health and the environment, and the potential impact on the Canadian economy. CFIA will employ a graduated approach to a suspected animal disease outbreak: ***Initial Response*** – A CFIA case officer or the district veterinarian will visit the suspected premises to undertake testing and apply any necessary controls.

Enhanced Response – On confirmation of disease, the response is augmented as necessary to carry out data collection, enforcement, destruction, disposal and cleaning/disinfection to ensure control and eradication of the disease.

Expanded Response – Based on the seriousness of the situation, the CFIA Regional Director may recommend an expanded response to include activation of a joint federal-provincial emergency operations centre (JEOC) to control all operations.

During an animal disease response, the local government emergency structure will work in conjunction with the federal-provincial JEOC in the affected area. Local government officials will play a key role in advising on local conditions, coordinating with the local livestock industry, providing information on disposal sites and resources, providing resources to the disposal effort and keeping the public advised.

The local government may be required to undertake a variety of operational tasks within or as coordinated by the JEOC. See the FADES Plan Annex D for a description of the roles and responsibilities of all organizations and agencies that may be involved in a farmed animal health/carcass disposal emergency.

The structure of a federal-provincial JEOC that may be established during an animal disease response is illustrated at Appendix 1 to this section.

3.3 Non-Disease Response

Natural disasters such as floods, fires or extreme weather can cause significant animal mortality, particularly in intensive livestock farming operations where a high density of farmed animals is present. In some cases, preventive measures in themselves may result in significant mortality – for example, the mass movement of dairy cattle to a safe area in advance of a predicted flood may result in mortalities in the range of 3 to 5 percent of the animals moved.

When animal mortality caused by a natural disaster is beyond the capability of producers to manage, or when mass mortality has a potentially significant public health impact, it becomes a carcass disposal emergency which must be managed by the local government.

In such a situation, the local government will be expected to manage the emergency response, supported by the appropriate provincial organizations and agencies. As with other emergency situations, the local government must remain in close contact with

PEP, which will provide a level of support appropriate to the situation. Both MAL and the applicable regional Health Authority must also be kept aware of the situation during any mass mortality event, and each will provide appropriate advice and support.

The local government response will depend on whether the animal mortality is part of a larger emergency (e.g., flood or earthquake) for which an emergency response has already been initiated, or the carcass disposal emergency is independent of a broader response.

A critical path showing the steps to be taken in a non-disease response is at Appendix 1 to Section 4.

3.4 Animal Disease Response

In accordance with the *Health of Animals Act* and *Animal Disease Control Act*, warning of animal mortality caused by an animal disease will originate with producer(s), and carcasses must be inspected immediately by a local veterinarian. Until the mortality is confirmed to be the result of a reportable disease, the producers are initially responsible for carcass disposal.

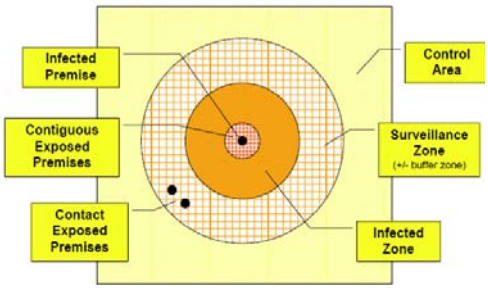
If the scale of mortality from any disease is beyond the capabilities of the local livestock industry, the matter becomes an emergency and an expanded federal-provincial response will be initiated. Initial notification may come from a producer, abattoir, diagnostic laboratory, local veterinary practitioner, public health unit or the BC Chief Veterinary Officer who, in turn, contacts the CFIA Regional/ District Veterinarian or District Office Manager.

Each CFIA Regional/District Office normally maintains a contingency response plan to guide their response to an animal health emergency. CFIA evaluates the situation and determines what steps, if any, are necessary to further characterize the disease based on the epidemiology report from the initial visit to the suspect premises.

If the existence of a serious/reportable disease situation is confirmed, a CFIA *Emergency Response Team* will be mobilized for further assessment of the situation and to commence control and eradication activities. The need for a JEOC will be assessed and, if required, will be established in the vicinity of the affected area.

Control and eradication activities will normally begin by controlling movements of animals and people in zones where the disease has been diagnosed. There may be one or more infected zones containing the infected premises. Depending upon the disease, the perimeter of the infected zone(s) would extend a minimum of three kilometres beyond all known infected premises and would follow, when possible, natural barriers and roadways to facilitate

implementation of disease control procedures.



CFIA – Reportable Disease / FAD Control Area Schematic.

Surrounding the infected zone(s), will be a restricted zone extending from the perimeter of the infected zone(s) to a specified distance, which could vary according to the disease. A security zone will extend from the outer limit of the infected and restricted zones to the limit of the control area. The three zones will constitute a *Control Area* where certain measures would be applied according to a pre-approved disease control/eradication strategy (see schematic above).

In situations involving mass animal mortality, the JEOC will contain a *Disposal Group* to oversee carcass disposal operations. This group directs the disposal of carcasses and regulated materials associated with destruction ordered in the disease response. The *Disposal Group* designs a disposal plan to prevent the spread of the pathogen and mitigate public health or environmental risks. It is essential that the Disposal Group receives assistance from the local government in order to identify appropriate sites for disposal of carcasses.

Local governments will be required to assist the federal/provincial JEOC by providing local coordination and support. The nature of the assistance will vary according to the situation, but may include: advice on local conditions; coordination with local industry; provision of local emergency services including police, fire and communications services; the provision of local resources and the coordination of federal, provincial and local media. Amplification on possible local government and local police roles is included in FADES Plan Annex D.

A critical path showing the main steps to be taken in an animal disease response is at Appendix 3 to Section 4.

3.5 Disposal Options and Protocols

Selection of an appropriate methodology for carcass disposal in an emergency is situation dependent – choices must be based on the animal species involved, the scale of the mortality, environmental concerns, public opinion and other factors.

The selection of a preferred method of disposal will usually be determined by the cause of death. When a natural disaster is the

cause, the disposal method chosen should be the most environmentally acceptable. If the death was due to an infectious organism, then the method that most efficiently prevents further disease spread is usually the preferred choice, while taking all possible actions to protect the environment.

The protocols for emergency carcass disposal depend primarily on the cause of mortality:

a) *Non-Infected Animals*
For non-infected animals the full range of disposal choices is available, with market or rendering being appropriate options. Only live animals are suitable for market slaughter and processing and this will normally include only non-infected animals, although for certain diseases such as tuberculosis infected animals may also be suitable for the market option.

b) *Infected Animals*
For infected animals, emergency disposal methods must meet five key criteria:
- suitability (disease agent inactivation);
- legality (environmental protection);
- safety (public safety not compromised);
- practicality (time and cost efficient); and
- if an animal disease is present, CFIA approval of the disposal method is required.

Disposal of infected carcasses may be on-site, depending on the type of carcasses and the cause of mortality, and this is normally the preferred option unless environmental and social factors dictate other choices. If movement of carcasses off-site for disposal is required, this must be carried out according to strict bio-security controls.

MAL continues to develop a comprehensive package of protocols which establish approved methods of disposal for each type of disease and animal species. The responsible office in the Ministry should be contacted for information on current protocols and guidance at the outset of any carcass disposal emergency.

3.6 Specified Risk Material

The *Health of Animals Act* regulates the handling of specified risk material (SRM). SRM are tissues that, in BSE-infected cattle, have been shown to contain the infective agent and transmit the disease. Consequently, these tissues are considered to be SRM in all cattle as defined in the glossary.

		The handling of bovine carcasses therefore is affected by federal SRM regulations. Rules related to the handling of SRM in landfills and by other disposal methods are prescribed by CFIA and may be viewed at: http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/enhren/art/wasdece.shtml As the mass disposal of bovine carcasses will present unique issues with respect to SRM handling, guidance for specific situations must be sought from CFIA before any decision on the disposal or movement of bovine carcasses is taken. This is true for both disease and non-disease related mass carcass disposal emergencies.
3.7	**On-Site or Off-Site Disposal**	Historically, disposal of diseased carcasses was done on the infected premise to avoid spreading the infection by transporting the carcasses to an off-site facility. However, some on-site disposal methods, burial and burning, have potentially serious environmental consequences and on-site composting may be limited by space requirements and access to carbonaceous bulking agents (wood chips, straw, peat moss). While on-site disposal is still the preferred option, off-site methods may increasingly be used in emergencies, particularly for the carcasses of large animals. It is important to differentiate between limited disposal action for routine mortalities and the vast disposal challenges of, for example, a foot-and-mouth disease emergency. A decision to move the disposal activities off-site will be related to the scale of event (i.e., the volume of material), site capacity, potential human health concerns and environmental concerns. For off-site disposal, the primary issue will be to identify a suitable site for disposal and the transportation of carcasses in a safe, sanitary and timely fashion to avoid spreading the disease and/or endangering public health
3.8	**Transport of Carcasses**	Transport of infected carcasses must be planned and executed with care, utilizing leak-proof vehicles approved for transporting hazardous material. Refrigerator trucks may be used. Vehicles should not be overloaded – at least 24 inches of freeboard, depending on distance to be travelled and temperature, should be left clear for expansion of carcasses. Smaller carcasses should be bagged if feasible and larger carcasses covered with a layer of poly sheeting. If vehicles are not enclosed, they should be lined and an airtight vinyl tarp should be placed over the top. All vehicles must be cleaned and disinfected before leaving the

infected premise and after unloading.

Vehicles should travel on designated routes, preferably with an escort vehicle. They must travel slowly to avoid splashing of contaminated material and a supply of an approved disinfectant should be carried to deal with minor spills during transit.

Carcasses and other items awaiting disposal should be secured to prevent unauthorized access, and to prevent wild animals and birds removing potentially infectious material. Control of insects should be considered if there is a risk of passive transmission by insects to nearby susceptible species. If disposal is delayed, carcasses should be thoroughly sprayed with an approved disinfectant.

Federal and provincial protocols for the transportation of animal disease material are under development by CFIA/MAL. These protocols will guide decisions on applicable transportation issues.

3.9 Pre-emptive Slaughter of Animals

The pre-emptive slaughter of animals to support efforts to control and eradicate the disease is an integral part of a response to an animal health emergency involving an animal disease. In such cases the JEOC will normally contain a *Destruction Group*.

Given information about the disease, animal type, location of infected premises and disposal methods, the *Destruction Group* develops a strategy for destroying all animals that are known or suspected to be infected in an attempt to contain and eradicate the disease. Pre-emptive slaughter may extend, in some emergencies, to hobby farms and/or backyard poultry flocks.

Animals destroyed in this way may not be infected with the underlying disease, but will still become part of the carcass disposal operation. Such carcasses may require separate transportation and disposal channels.

Disposal should be completed as soon as possible after destruction to minimize opportunities for infectious material to disperse and to complete handling of carcasses before decomposition has set in. In some disease situations, many of the animals slated for pre-emptive slaughter may be suitable for market. The market option is preferred where possible, but the animals must be transported to approved commercial slaughter/processing facilities using approved transportation and handling protocols.

Officials must recognize the significant emotional impact on the owners of destroyed animals and deal with these situations with appropriate empathy. Representatives from the respective producer

associations may be engaged to mitigate any conflicts which arise between the producers and the *Destruction Group*.

3.10 Impact on Human Health

The presence of a zoonotic disease that has a potentially serious impact on human health will require close cooperation between animal health and human health officials in a carcass disposal emergency. Zoonotic diseases with a high risk of animal mortality are listed at Annex A.

In the event of an animal disease emergency the general public will be concerned with the implication of disease on their own health and that of their families. A key part of the emergency response will be ensuring that potential threats to human health are fully understood and managed effectively, which will necessitate a comprehensive public information strategy.

In an animal disease/carcass disposal event the JEOC will normally include a *Human Health Branch*, which will be activated whenever the identified disease presents public risks associated with a zoonotic disease.

3.11 Safety

Personnel safety is an overriding consideration during disposal operations. Before commencing disposal work, personnel must be fully briefed on the nature of the disease and any specific hygiene requirements.

Safety issues to consider include personal hygiene facilities, the availability of rescue equipment, hearing protection and protection from dust.

Protective clothing including respirators must be supplied to personnel when there is any risk to humans from the organism involved or if large amounts of dust or odour are generated

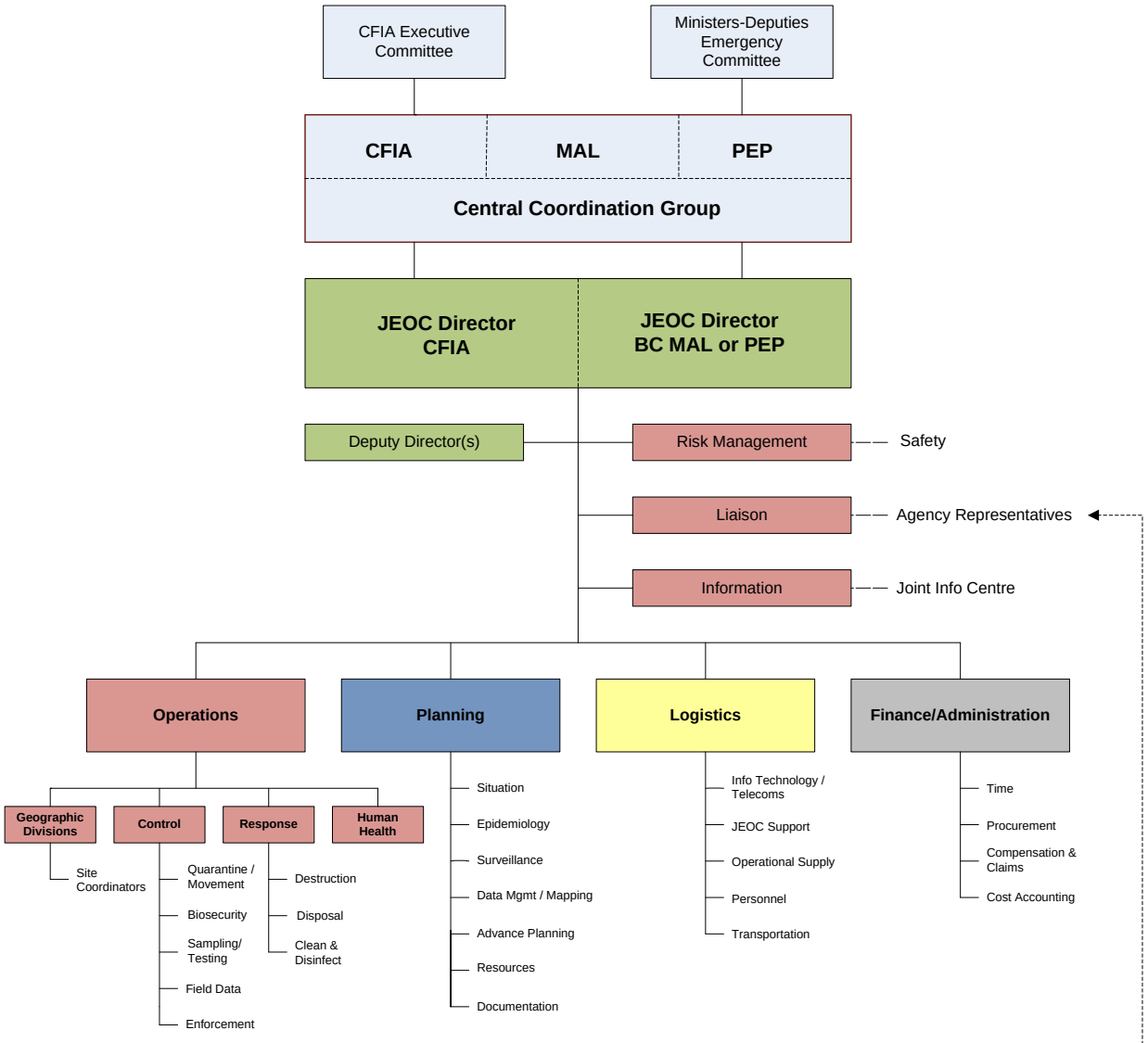
3.12 Environmental Issues

Disposal of animal carcasses and other infectious material may have adverse environmental consequences. It is essential for the environmental aspects of proposed disposal activities to be thoroughly evaluated so as to ensure that the impact of such consequences is minimized.

Proper environmental monitoring before and after carcass disposal is also necessary. Sampling frequency and volume should be determined based on a standard sampling method to prevent human-induced errors, and to provide true characteristics and variability of the pollutant(s) from carcass disposal areas.

		Consultation with the MOE during a carcass disposal operation is required to obtain specific information and permits, and to ensure that current guidelines and best practices are applied.
3.13	**First Nations**	First responders are permitted to enter First Nations lands **only if specifically requested by the band officials and INAC**. Should a carcass disposal emergency affect First Nations lands, prior authorization for entry must be obtained. This will normally be done through the JEOC or PEP, but in emergency situations may be done directly with INAC and the applicable First Nations entity if this is practicable.
3.14	**Media/Public Information**	An effective public information strategy is an essential part of managing an emergency. The public will demand information even if the effects of the emergency are limited, which will put an enormous premium on what local officials say publicly and how they say it. Negative public reaction can often be limited by an articulate, calm and confident spokesperson who is able to reassure the public that the response is appropriate and effective. Experience has shown that there will be a high demand for information throughout disposal operations. The effective integration of information is particularly important, as there are likely to be several levels of responders involved. The key is to have designated public information officers or spokespersons from the outset, including industry representatives, who cooperate closely with each other. A clear, timely and consistent message is essential. All organizations involved must ensure that the overarching requirement to deliver information is not unduly delayed by a perceived need to have complete information. The public wants to know the situation and should be briefed regularly. An information officer should be in the EOC at all times to collect and coordinate the information being received, and to ensure that the media and public are briefed regularly and comprehensively.

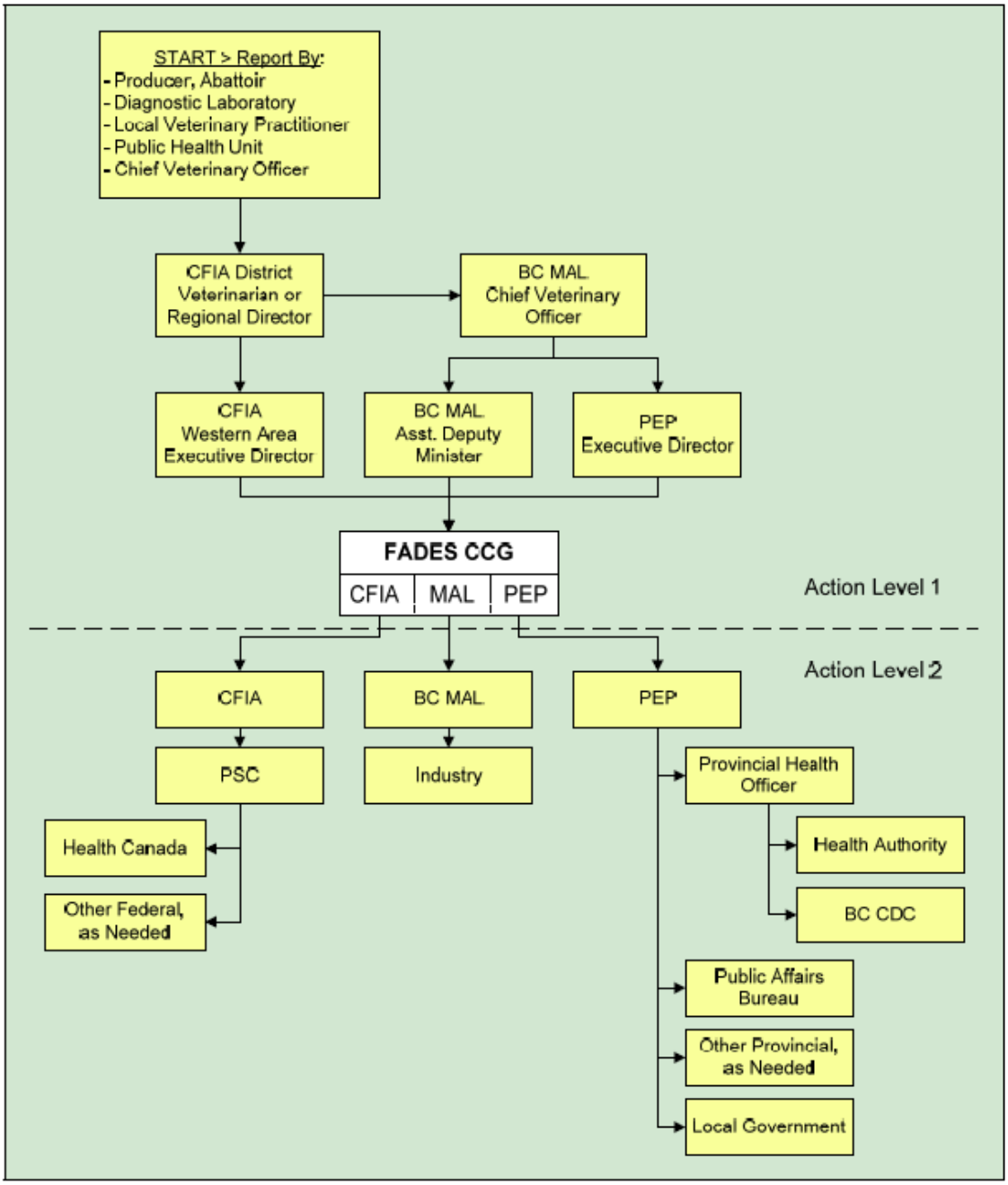
Appendix 1 to Section 3
FADES Plan Response – JEOC Structure



Function Chart for a Fully-Activated Federal-Provincial Joint Emergency Operations Centre (JEOC)
(Source: FADES Plan 2008)

The local authority will fit into the JEOC as required by the situation. In principle, the local government interaction with the JEOC would initially be through the Liaison Group, however the JEOC Director may wish to have local government representation directly within the Operations, Planning or Logistics Sections. Local government officials will always have direct access to the JEOC Directors on matters which affect the local jurisdiction.

Appendix 2 to Section 3
CFIA Expanded Response Notification Flow



(Source: FADES Plan 2008)

4. Disposal Operations – SLRD

4.1 General

Effective disposal operations in the SLRD will be those that are planned in advance. Decisions on disposal may have to balance the interests of animal health officials with potentially competing concerns about environmental protection and safeguarding public health.

It should be noted that the SLRD does not have the necessary resources to mount a comprehensive response to a carcass disposal emergency. In a non-disease event the SLRD will work together with the local livestock industry, PEP, MAL and MOE to undertake disposal operations. In an animal disease event the SLRD will provide appropriate support to federal/provincial authorities.

A key to success will be the identification of suitable disposal options, resources and sites in advance of an emergency. There will be little time to do this once carcass disposal operations are underway.

4.2 Probable Roles and Tasks

The roles and tasks for SLRD in a carcass disposal emergency, either directly or in support of a federal-provincial emergency management structure, may include:

a) Assessment of Requirements

Determine the scope and scale of the emergency in the local area. Review disposal protocols, adapt to the situation at hand and obtain the appropriate approvals for potential adaptations.

b) Enforcement

Enforce holds and quarantines through local law enforcement agencies including barricading roads to assist with quarantine and movement controls, and ensuring adherence to decontamination and disinfection protocols.

c) Identification of Disposal Methods

Review disposal options and identify the most acceptable alternatives. Promote and implement site-specific environmental mitigation and determine equipment and supplies required. (Note: Disposal protocols are continuously being refined and advice should be sought from MAL).

d) Disposal Site Selection

Identify disposal sites within the local area and assist with logistical support to implement destruction and disposal strategies.

e) Transport of Carcasses

Identify the primary and alternate means of transporting carcasses to disposal sites and arrange suitable transportation resources.

f) *Coordinating Support*

Identify needed resources including equipment and other support services, and assist in coordination throughout the emergency.

g) *Monitoring*

Visit off-farm disposal facilities to ensure compliance with plans.

h) Documentation

Gather and record information on carcass management.

i) Communications

Assist with ensuring a timely response to public concerns and questions, working with public information officers and the media to provide the timely passage of information. A sustained effort is required to make certain that current information is passed to all stakeholders, including local industry representatives, adjacent jurisdictions, health sector organizations and all other organizations engaged in or associated with, the emergency response.

j) Assisting Federal / Provincial Agencies

Provide support to federal and provincial organizations as required, including PEP, MAL, MOE, and CFIA.

4.3 Initiating Local Disposal Operations

The first indication of a carcass disposal event is likely to come from a local producer. If the mortalities resulted from a disease, the local jurisdiction may not be involved in, or even aware of, the initial reporting of the disease and initial inspection/testing activities by CFIA.

The local government will become involved when the scale of carcass disposal requirements exceeds the producer's capacity to manage. For a non-disease event, the SLRD will activate its carcass disposal emergency plan and work with applicable

provincial agencies to respond to the emergency.

For an animal disease event, the applicable CFIA District or sub-District Office will coordinate the first response (Vernon or Vancouver/Richmond). The applicable CFIA office has the capability to open a small EOC on-site, and will determine the initial steps to be taken until the arrival of additional CFIA personnel and resources. The SLRD will provide appropriate support as required by the situation.

Critical paths and master checklists for both non-disease and animal disease events are at Appendices 1-4 to this section.

4.4 Disposal Options: Non-Disease Event

The natural events considered most likely to affect the SLRD area are identified in Section 2.2, *Risk Profile*. For a non-disease event, the responsibility for selecting the disposal methodology will rest with SLRD, in consultation with PEP, MAL and MOE.

The selection of suitable disposal methods for a non-disease event requires due regard to environmental concerns, safety and public opinion. The disposal methodology selected will depend on a number of variables, including the animal species, cause of mortality, location and condition of carcasses and environmental conditions.

A range of options is listed below in preferred order of priority (see Annex B for amplification of disposal methodologies):

Priority	Methodology	Notes
1	**On-Farm Composting**	Composting is currently practiced by some producers for routine mortality. Bin or windrow type composting is the norm. **Suitability**: Poultry (in-barn when possible), cattle and other larger animals in limited numbers when required equipment is available. **Note:** The end product from composting cattle carcasses from which SRM has not been removed must be disposed of in accordance with SRM regulations.

2	**On-Farm Burial**	On-farm burial is a suitable option for a limited numbers of carcasses where geological and hydrological conditions permit. Burial sites must be a reasonable distance from any residences, screened from view and easily secured. Soils should have low to medium permeability and sufficient depth to permit trench construction sufficient distance to ground water from trench bottom and sufficient cover depth. A bottom clay layer is highly desirable to prevent leaching. **Suitability**: Cattle and other large animals in limited numbers, sheep, hogs. **Note**: MOE advises against on-farm burial if the area receives more than 600 mm (23.6 inches) of annual precipitation and/or the seasonal high water table depth is less than 2m (6.6 feet) and/or the site is above an unconfined aquifer, and/or burial in coarse textured soils.
3	**Rendering**	There is one rendering plant in BC, West Coast Reductions (WCR) Ltd in Vancouver. WCR renders smaller animal carcasses on site and ships all bovine and horse carcasses out of the area for processing, to a subsidiary WCR plant in Calgary. WCR is not currently permitted to render infected carcasses. **West Coast Reduction Ltd.** (WCR) 105 North Commercial Drive Vancouver, BC V5L 4V7 604-255-9301 http://www.wcrl.com/index.htm **Suitability**: Cattle, poultry, hogs. **Note**: Dead animals have to be at the gate of the rendering facility within 24-36 hours after death. Coordination of transportation resources is crucial.

4	**Incineration**	High-temperature incineration is an effective disposal option. However, there are currently no large-scale, fixed-facility incinerators in the SLRD. The only incinerator available in BC is in Burnaby, but it has limited capacity. A large incinerator exists at the Swan Hills facility in Alberta, however, technical process limitations, costs and bio-security risks of long distance transport would have to be considered. Portable incinerators may be sourced but have limited capacity and may not be readily available in an emergency. **Suitability**: All animals. **Note:** Incineration of cattle carcasses must meet specified critical temperatures in accordance with SRM regulations. CFIA approval is required.
5	**Central Composting**	Off-farm composting is acceptable if suitable sites are available. Sites should be on high ground with good drainage. A preferred base is a concrete pad, asphalt or packed gravel. However, a field with vegetative cover is acceptable if leachate can be effectively contained. The composting site must be at least one metre above the high water table level and 30 metres from any water source used for domestic purposes. Minimum recommended site size is 20 acres. **Suitability**: Poultry, sheep, hogs, limited suitability for cattle and other large animals. **Note**: It is essential that potential sites be identified in advance.
6	**Central (Trench) Burial**	Off-farm burial is suitable for large numbers of carcasses, but is likely to meet with public opposition. Sites remote from populated areas with limited access such as in logged or burned over areas may be acceptable if the terrain, geological and hydrological conditions are suitable. Advice must be

		sought from MOE and MAL on site selection, and **potential sites should be identified in advance.** **Suitability**: Cattle and other large animals, sheep, hogs.
7	**Landfill**	There are two landfills in the SLRD jurisdictional area with very limited capacity for carcass disposal (see Appendix 5). **Suitability**: Animals as approved by CFIA and within SLRD policy for disposal. **Note**: CFIA approval is required for all animal carcass disposal in landfills, with an additional special permit for SRM.
8	**Air-Curtain Burning**	Air curtain burning utilizes a trench or contained system with a forced air supply. It produces lower temperatures than incinerators and is a less desirable option. **Suitability**: Poultry, sheep, hogs. Limited cattle carcasses. **Note**: No air curtain burning of SRM is allowed due to the risk presented by fly ash.

Guidelines for the selection of potential disposal sites within the SLRD are shown at Appendix 6.

The choice of disposal options and sites must always be made in close consultation with MAL, MOE and/or PEP. SRM regulations apply to bovine carcasses in all cases. In a large scale emergency the volume of carcasses created will influence the method of carcass disposal. Public opinion will always be a factor.

MAL disposal protocols provide detailed information concerning disposal choices:

MINISTRY OF AGRICULTURE AND LANDS
Resource Management Branch **Waste Management Engineer** **604-556-3001**

MAL must be contacted for current information prior to any final decisions about disposal methods being made.

4.5 Disposal Options: Animal Disease Event

For an animal disease event, the responsibility for disposal rests with CFIA, in consultation with provincial and local officials:

CANADIAN FOOD INSPECTION AGENCY
SLRD North (Electoral Areas A and B) **Vernon District Office** **2814 48 Avenue** **Vernon, BC V1T 3R4** **250-260-5018 (District Veterinarian)** **SLRD South (Electoral Areas C and D)** **Vancouver/Richmond Sub-District Office** **Floor 2, Room 201** **4831 Miller Road** **Richmond, BC V7B 1K7** **604-666-7042 (District Veterinarian)**

The options listed for a non-disease event in Paragraph 4.4 above will also apply to an animal disease event, with special requirements for infected carcasses. Any transportation of infected carcasses would have to be done in vehicles suitable for the transportation of hazardous waste, and the risks involved in transporting infected carcasses over long distances would have to be carefully considered.

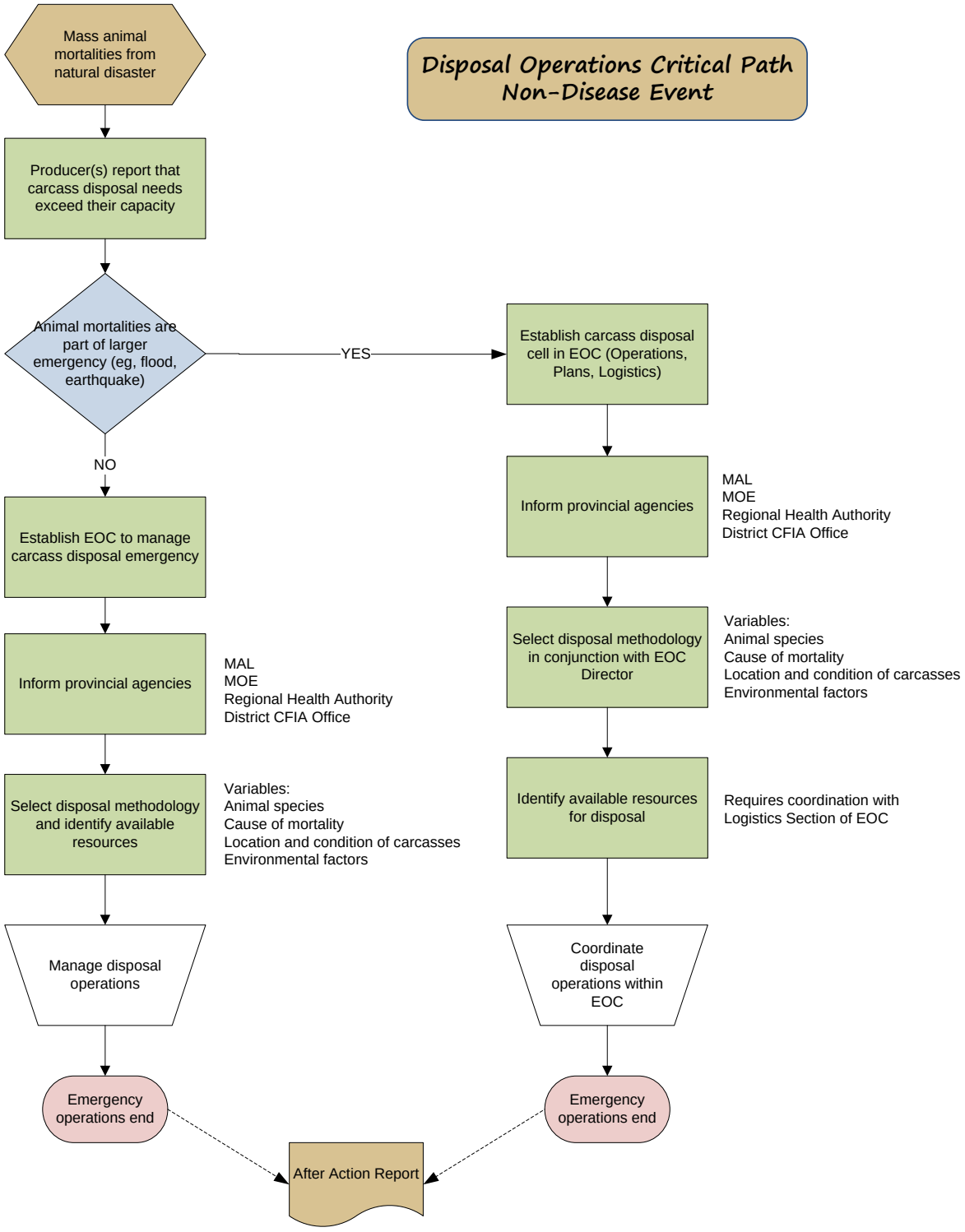
The SLRD will be required to work closely with federal/provincial officials in determining suitable local disposal options during an animal disease event.

4.6 Threats to Human Health

The SLRD must maintain close communication with applicable regional health authorities and local medical facilities throughout carcass disposal operations, and ensure that potential threats to human health and mitigating strategies are identified and communicated:

HEALTH AUTHORITIES
Vancouver Coastal Health Authority **604-736-2033** **Interior Health Authority (Lillooet Area)** **250-862-4200**

Appendix 1 to Section 4
Critical Path – Non-Disease Event

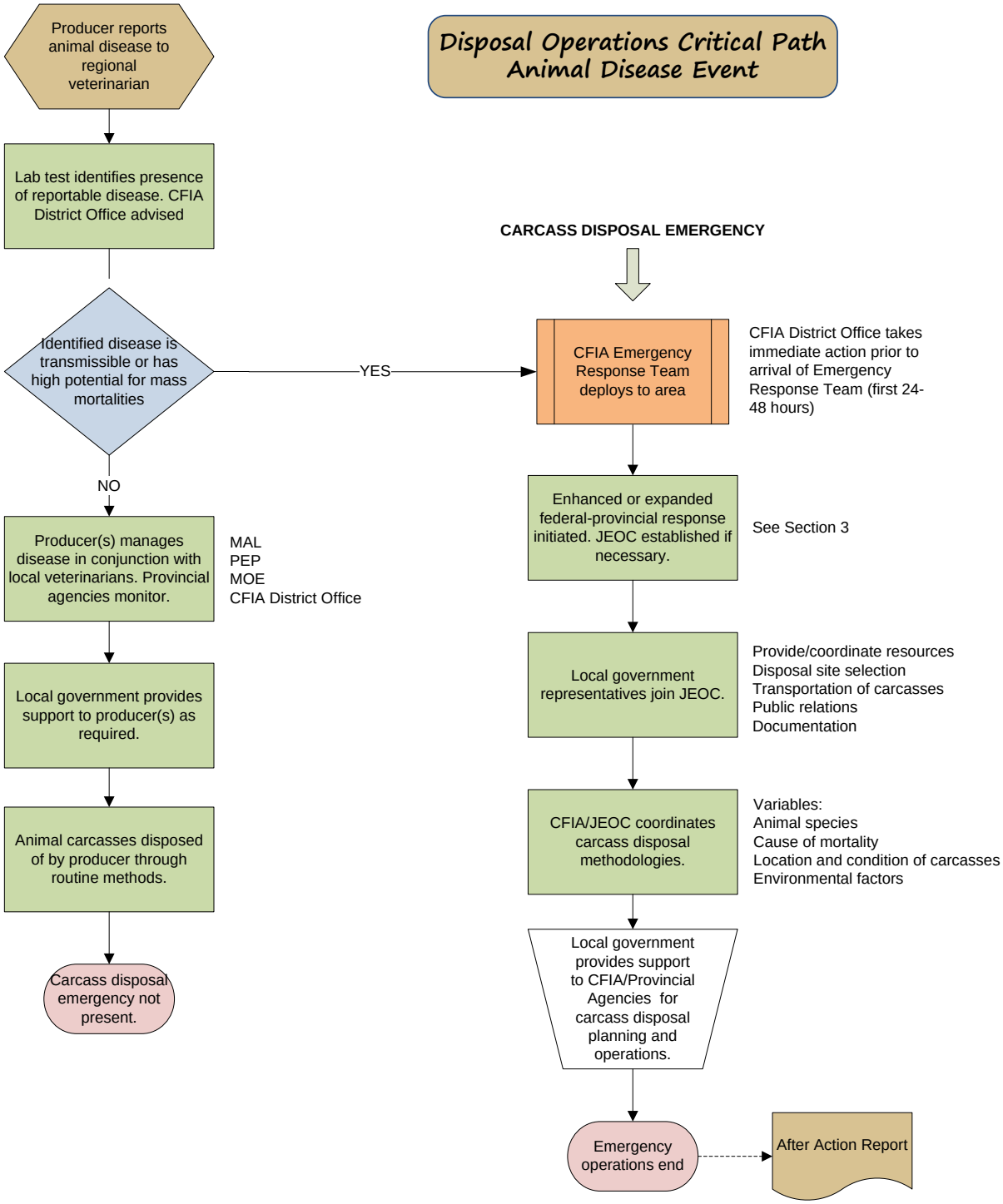


Appendix 2 to Section 4
Master Checklist – Non-Disease Event

☑	Required Action
☐	If part of a larger emergency (e.g., flood, earthquake), form carcass disposal planning team to join EOC. Team should join Planning Section and coordinate closely with Operations and Logistics.
☐	If independent from a larger emergency (e.g., localized fire, ventilation failure, etc) activate EOC for carcass disposal operations.
☐	Identify affected farms and contact producers. Note 1
☐	Determine locations and estimated numbers of carcasses.
☐	Notify MAL and MOE.
☐	Notify PEP and obtain PEP Task Number if applicable.
☐	Identify and nominate industry representative(s) to EOC.
☐	In consultation with producers, determine if off-farm disposal is likely to be required. Review transportation requirements and availability if applicable.
☐	Determine if animal carcasses may represent a threat to human health and contact Regional Health Authority if applicable.
☐	Develop and implement public relations/communications strategy and plan.
☐	Develop disposal plan in close consultation with MAL and PEP.
☐	Review potential disposal sites and, in conjunction with MAL and MOE arrange geotechnical or other assessments required.
☐	Review resource lists and identify required equipment for carcass disposal.
☐	Brief affected producers on disposal plans and adjust as necessary.
☐	Finalize plan and implement disposal operations.
☐	Brief key stakeholders and keep public advised through local media, town hall meetings, etc.
☐	Ensure appropriate documentation on carcass disposal is completed and retained.
☐	Review compensation guidelines (anticipate and have solutions for local questions on compensation).
☐	Record all decisions and actions for daily logs and After Action Report.

Note 1: For small carcass disposal events the responsibility remains with the producer(s). Local government assistance applies when the producer becomes overwhelmed or no suitable options exist on-farm.

Appendix 3 to Section 4
Critical Path – Animal Disease Event

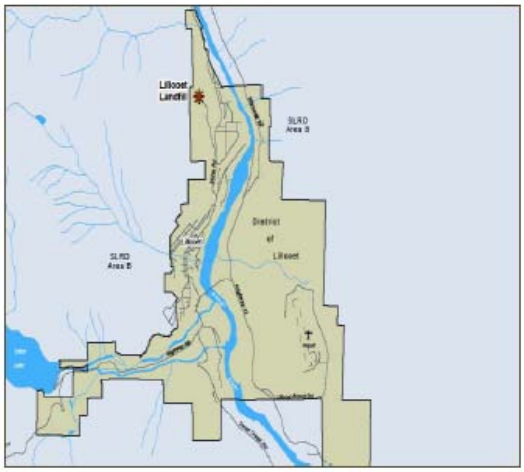


Appendix 4 to Section 4
Master Checklist – Animal Disease Event

☑	Required Action
☐	On receipt of information about a potential animal disease event, ensure that appropriate reports to CFIA have been made by producer. Warn carcass disposal emergency team members.
☐	On confirmation of carcass disposal emergency, liaise with CFIA/MAL/PEP and monitor federal/provincial planning.
☐	Initiate development of local public relations/communications plan. Note 1
☐	Provide support to CFIA Emergency Response Team (if deployed).
☐	Obtain PEP Task Number (if applicable).
☐	Determine from CFIA/PEP if FADES Plan will be implemented and, if so, nominate local government and industry representatives to join JEOC.
☐	Liaise with MOE with respect to local restrictions on carcass disposal.
☐	Liaise with JEOC to ensure that local producers and other stakeholders have been briefed and are kept advised on carcass disposal planning and operations.
☐	Review resource lists and develop logistics/transportation plans in conjunction with JEOC.
☐	Assist JEOC with preparation of disposal plans, providing advice on local conditions.
☐	Review potential disposal sites in local area and assist JEOC in arranging geotechnical and other surveys/assessments as required.
☐	Ensure local first responders are briefed on carcass disposal requirements and are available to assist as required.
☐	Determine from CFIA any threats to human health from animal disease and liaise with Regional Health Authority on public health issues.
☐	Participate as required in JEOC Action Planning Meetings to ensure that local interests are considered.
☐	Keep local stakeholders and public advised of carcass disposal plans and activities through local media, town hall meetings and/or other means.
☐	Maintain records/logs of all decisions and daily activities for After Action Report

Note 1: It is essential that the local communications plan be closely coordinated with regional/provincial/ federal communications strategies to ensure common messaging among all responding agencies.

Appendix 5 to Section 4
SLRD – Regional Landfills



Lillooet Landfill

The Lillooet Landfill, located on Moha Road in Lillooet, is owned by the SLRD and operated under contract by a private firm. The landfill serves the District of Lillooet and Electoral Areas A and B.

Squamish Landfill

The Squamish Landfill is owned by the District of Squamish and operated under contract by a private firm. The landfill receives waste primarily from the District of Squamish and the communities of Furry Creek, Britannia Beach and Pemberton.

A limited number of animal carcasses may be disposed of at these landfills under the Environmental Management Act, however CFIA approval would be required for the disposal of a large number of carcasses in an emergency. Certification would be required that the landfills satisfied requirements with respect to flooding and aquifers, engineered containment, leachate management and gas management regimes.

Neither of the current landfills have a CFIA permit for the processing of SRM and are therefore not suitable for the disposal of bovine carcasses unless SRM has been removed. Information on applying for such a permit and the application checklist is available online at:

http://www.inspection.gc.ca/english/anima/heasan/disemala/bseesb/enhren/permie.shtml

Appendix 6 to Section 4
SLRD – Disposal Site Selection

Minimum site size is 20 acres, but burial sites for large numbers of carcasses may have to be significantly larger.

The basic guidelines for site selection for burial and composting are shown below. It should be noted that sites are identified initially on the basis of size, location and availability only, and will require comprehensive geo-technical and environmental surveys before being approved for carcass disposal.

Burial	Composting
Sites should be at least 10m above the high water table and 300m away from wells or watercourses used for domestic purposes. Flood prone areas, steep slopes and bedrock should be avoided.	Sites should be at least 1 m above the high water table and 30 m away from wells or watercourses used for domestic purposes. Flood prone areas, steep slopes and bedrock should be avoided.
Sites should be at least 400m from provincial highways, 100m from provincial roads or railroads and 300m from private residences.	Sites should be on high ground with good drainage where pooling of water does not occur.
Locations above an existing aquifer are excluded due to the potential for contamination.	The preferred base is a concrete pad, asphalt or packed gravel, however a field with vegetative cover can be used if it will support equipment and leachate can be effectively contained.
Access to the site must be suitable for heavy equipment and the delivery of livestock carcasses in transporter trucks.	Access to the site must be suitable for the delivery of livestock carcasses in transporter trucks.
Sites must have soils with good stability capable of withstanding the weight of equipment used to construct and fill the pits.	The site should be shielded from public view and secure from animal predators.

Potential sites should be identified in advance of a carcass disposal emergency. If this is not feasible then sites will be identified, in conjunction with the SLRD Planning Department, as early as possible within the emergency response.

More detailed information on site considerations and selection is at Annex B.

5. Disposal Resources – SLRD

5.1	**General**	The key to managing mass carcass disposal lies in the identification and provision of appropriate resources. This includes resources for the storage and transportation of carcasses as well as those needed for the actual disposal. Each mass carcass disposal event will be unique, and therefore no complete list of required disposal resources can be developed. The resources will always need to be specifically tailored to the situation.
5.2	**Resource Requirements**	Disposal resources for carcass disposal will normally include transportation, heavy equipment, carbonaceous bulking agents such as wood chips or straw and protective/safety equipment for personnel. A generic equipment list for disposal operations is at Appendix 1 to this section.
5.3	**Specialized Disposal Resources**	Specialized disposal resources will be required in certain circumstances. They include a broad range of items from professional engineering, environmental and geotechnical consultants to specialized equipment and supplies. Examples are: a) mobile incinerators / air-curtain burners; b) composting equipment; c) container equipment; d) generators; and e) decontamination equipment and chemicals. A specialized equipment list for disposal operations is at Appendix 2 to this section.
5.4	**Resource Availability**	The SLRD does not have integral heavy equipment and other resources required for a carcass disposal emergency. However, local suppliers/equipment hire contractors can provide a good range of resources on a commercial basis. Appendix 3 lists commercial disposal resources and equipment suppliers. Map locations and a list of provincially licensed slaughter facilities/ meat plants in BC is at Appendix 4 to this section.

5.5 Resource Gap Analysis

The SLRD does not possess all of the equipment or resources required to respond to a carcass disposal emergency. While many of the necessary resources can be obtained in the local area, shortfalls will continue to exist in the following areas:

a) **Incinerating Capacity**. There is no large fixed-facility biological incinerator in the SLRD or the surrounding area, and only one in BC (Burnaby). The Burnaby incinerator is not well set up to receive carcass material, which limits its usefulness. Portable incinerators may be sourced but these have a relatively small capacity.

b) **Rendering Capacity**. The only facility available in BC is the WCR plant in Vancouver, which has little surge capacity and ships cattle and horse carcasses to Calgary for processing. WCR is not currently approved to handle infected carcasses.

c) **Approved Landfills**. The two landfills in the SLRD have limited capacity and are not approved for SRM (see Appendix 5 to Section 4).

d) **Composting Equipment and Supplies**. Should composting be selected as a primary means of disposing of cattle or other large carcasses, some necessary supplies and equipment would have to be sourced from outside the district.

e) **Personal Protective Clothing**. The SLRD does not hold stocks of suitable personal protective clothing for individuals who may have to visit infected premises or handle carcasses in a disposal emergency.

f) **Carbonaceous bulking agent**. The SLRD does not hold stocks of wood chips or straw for the purpose of emergency composting.

g) **Rendering** and **Incineration** are limited by logistical and bio-security concerns posed by the distance to available facilities.

Appendix 1 to Section 5
Generic Disposal Equipment List

Equipment Type	Requirement
Transportation:	Trucks up to 1-ton for equipment transport. Vans/minibuses for personal transport. Heavy trucks, approved for transporting hazardous material (leak-proof hazardous material trucks, refrigerator trucks or trucks with liners and tarps to prevent leakage/wind loss).
Heavy Equipment:	Excavators (for burial operations). Graders (for burial operations). Tractors with front-end loader. Backhoes with front-end loader. Midsize skid-steer loaders. High-lift front-end loaders. Cranes. Loading ramps. Bulldozers. Water tanker (if no water source at sites).
Light Equipment:	Motorized pressure spray units (cleaning, washing and disinfection of vehicles and containers) Generators, various capacities. Pumps. Compressors. Fans (blowers)
Safety and Security:	Warning signs. Portable disposal site lighting. Road pylons. Site marking tape. Identification badges
Personal Protection:	Protective clothing including footwear. Coveralls (for temporary visitors to disposal sites). Masks or respirators. Decontamination equipment and chemicals. Medications such as antivirals (controlled by medical staff). Portable toilets. Temporary shower and changing facilities. Clothes washing facilities. Walk-through footwear disinfectant facility.
Miscellaneous:	Tow chains. Bins for temporary storage of carcasses. Bags if required for transport of small carcasses. Poly sheeting and tarpaulins. Plastic film. Garbage cans and/or metal bins.

	Disinfectant. Lime. Digging tools. Cleaning and disinfectant supplies. Hand tools (shovels, picks, rakes, etc). Pickets / portable fencing. Ag-Bags for in-vessel composting. Composting thermometers. Grinders with screens. Ag-Bag filling machine. Carbon source / bulk agent (litter, sawdust, straw, wood chips/shavings). Water hoses. Fuel for pyres / air curtain burners. Cell phones. Digital cameras or camcorders.
Documentation:	Office equipment and supplies. Forms and templates. Printing facilities.

Appendix 2 to Section 5
Specialized Disposal Equipment List

This list provides guidance for specific disposal methodologies. It is not intended to provided a complete inventory of equipment/resources required for every foreseeable situation – each disposal emergency will have its own detailed needs. The list does, however, provide a basis for planning and a starting point for the allocation and deployment of resources.

Disposal Methodology	Resources Required
Burial	For burial, the preferred equipment for digging burial pits is an excavator. This equipment is the most efficient available for the construction of long, deep, vertically sided pits. Other advantages include the ability to easily store topsoil separate from subsoil and the equipment can be used if required to fill the pit with carcasses or other materials and closing the pit without disturbing the carcasses. Carcass conveyance such as a tractor with front-end loader. Tow chain. Disposal bins. Vans or other vehicles for personnel transport. Vehicles approved for transporting hazardous material. Bags if required for transport of carcasses (poultry). Poly sheeting and tarpaulins. Disinfectant. Protective clothing.
Burning	Backhoe with front-end loader. Digging tools. Vans or other vehicles for personnel transport. Vehicles approved for transporting hazardous material. Bags if required for transport of carcasses (poultry). Poly sheeting and tarpaulins with anchors. Disinfectant. Protective clothing. Suitable fuel for pyres. Preferred: air curtain burners.
Rendering	Vehicles suitable for transporting hazardous material. Poly sheeting and tarpaulins with anchors. Bags if required for transport of carcasses (poultry). Front-end loader. Tow chain. Vans or other vehicles for personnel. Disinfectant. Protective clothing.
Composting	Midsize front-end or skid-steer loader. Hand tools. Composting thermometers. Carbon source (litter, sawdust, etc).

	Moisture meter. Water hose and supply. Warning signs. Poly sheeting and tarpaulins with anchors. Cleaning and disinfectant supplies.
Incineration	Vehicles suitable for transporting hazardous material. Poly sheeting and tarpaulins. Front-end loader. Tow chain. Incineration equipment suitable for the carcass type(s) being disposed of. Vans or other vehicles for personnel. Protective clothing.
Fermentation	Containers: – Garbage cans (2 per unit) for less than six bovine units. – Large metal bins from renderer or large garbage bins for 6-60 bovine units. – Above-ground horizontal silo or trench silo or a liquid manure tank for more than 100 bovine units. Plastic film to cover containers. Front-end loaders. Grinder capable of reducing carcasses to 2cm cubes. Mixer capable of mixing animal tissue, water and culture. Lactobacillus culture. Carbohydrate source, such as processed animal feed or high starch vegetable waste.

Appendix 3 to Section 5
Disposal Resources and Equipment Suppliers

HEAVY EQUIPMENT

SLRD Emergency Equipment Contact List
The SLRD maintains a *Heavy Equipment Contact List* which contains information on suppliers of equipment suitable for emergency response. The list includes suppliers of excavators, backhoes, truck transportation, loaders, bulldozers and gravel pit products. The list of heavy equipment is maintained at SLRD Administration and is available to the Emergency Planning Coordinator's office. It should be utilized for identifying and contracting resources required in a carcass disposal emergency. **This list should be available in the EOC during a carcass disposal emergency.**

GEO-TECHNICAL AND ENVIRONMENTAL SERVICES

(These companies provide testing and analysis of unprocessed soil, sediment and aggregate samples).

AMEC Earth and Environmental 913 Laval Crescent Kamloops, BC V2C 5P4 250-374-1347 http://www.amec.com/	An earth and environmental consulting business covering all aspects of environmental services, geotechnical engineering, infrastructure, materials testing and engineering and water resource services. Contaminated sites and groundwater testing and monitoring.
EBA Engineering Consultants Ltd. 150-1715 Dickson Avenue Kelowna, BC V1Y 9G6 250-862-4832 http://www.eba.ca/	Terrain evaluation and other geo-technical and environmental services.
Golder Associates Ltd. Unit B, 12330-88th Avenue Surrey, BC V3W 3J6 604-591-6616 http://www.golder.com/	Ecological services, geo-technical surveys/testing, hydrogeological services, geotechnical engineering, risk assessment/toxicology, environmental management and remediation.
Levelton Consultants Ltd. 150-12791 Clarke Place Richmond, BC V6V 2H9 604-278-1411 http://www.levelton.com/	Specialist engineering and scientific services including materials engineering, quality assurance, environmental and geotechnical.
McElhanney Consulting Services Ltd. PO Box 787, 3907 4th Avenue Smithers, BC V0J 2N0 250-847-4040 http://www.mcelhanney.com/mcsl/	Cadastral surveys, engineering and topographic surveys, environmental services.

COMPOSTING SERVICES AND EQUIPMENT

Pacific Forage Bag Supply Ltd. 4404-50th Street Delta, BC 604-946-5026 http://www.pacbag.com/	Bags and other items for carcass composting.
Transform Compost Systems Ltd. 3911 Mt. Lehman Road Abbotsford, BC 604-856-2722 http://www.transformcompost.com/	Broad range of composting services including farm waste and mortalities. Provided composting services and advice during 2004 AI event.

AIR-CURTAIN BURNERS

ABY-2 Environmental Prince George, BC 250- 614-1483 http://portableincinerators.net/	Locally manufactured auxiliary fuel-fired (propane) portable air curtain burners with under-fire and over-fire air and continuous ash removal.
Air Burners, LLC 4390 Cargo Way Palm City, Florida 34990 772-220-7303 After hours: 561-248-9011 http://www.airburners.com/	Manufactures above-ground air curtain destructors and in-ground trench burner systems utilized for wood waste disposal and disaster recovery operations including carcass disposal.
Industrial Cleanburn 7795 Mays Road Duncan, BC 250-746-1918 http://www.industrialcleanburn.com/	Sell, rent, lease and contract air curtain units manufactured in USA.
Mounce Construction Ltd. Box 814 Salmon Arm, BC 250-832-9786 http://www.mounceconstruction.com/	Lease/contract ABC Air Curtain Destructor- Incinerators, a trailer-mounted portable air curtain destructor-incinerator.
Western Destructor Burn Box 1199 Salmon Arm, BC 604-240-1111 (no web site)	Manufactures air curtain trench burners for sale/rental. System includes trench construction and over-fire air curtain with under-fire air if required.

RENDERING PLANTS

West Coast Reduction Ltd. (WCR) 105 North Commercial Drive Vancouver, British Columbia V5L 4V7 604-255-9301 http://www.wcrl.com/index.htm	Only rendering plant in BC. Processes small animals (sheep, hogs) in Vancouver and ships cattle carcasses to Calgary for disposal. Not currently permitted by CFIA to process infected carcasses.

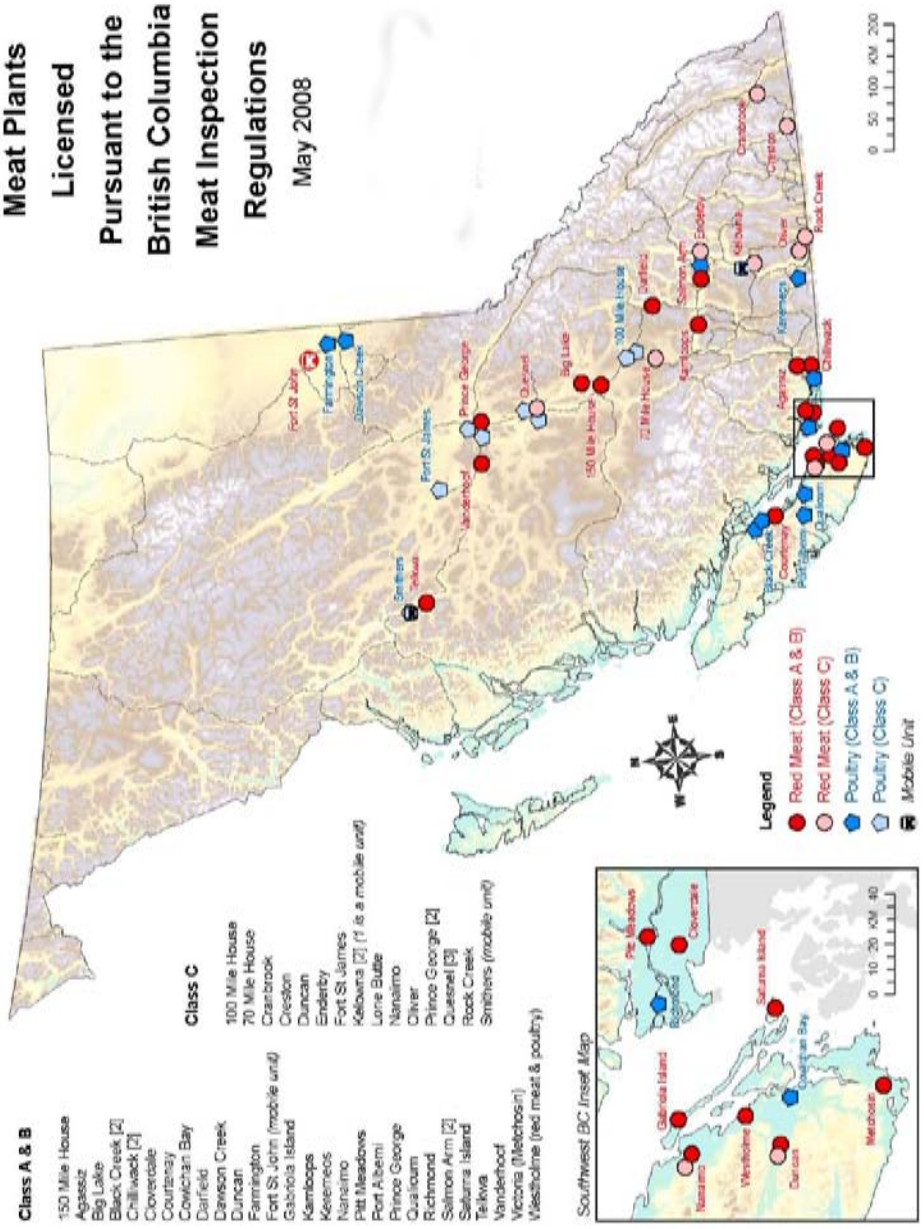
HAZARDOUS WASTE TRANSPORT AND DISPOSAL

BC Environmental Industry Association (BCEIA) 604-683-2751 http://www.hazwastebc.com/index.html	A current list of hazardous waste transporters in BC is available from BCEIA. http://www.hazwastebc.com/Hazardous_Waste_Transporters.html

LIVESTOCK HEALTH POLICY AND SERVICES

Canadian Food Inspection Agency Regional Veterinary Officer Canadian Food Inspection Agency BC Mainland/Interior 4321 Still Creek Drive, Room 400 Burnaby, BC V5C 6S7 604-557-4500 http://www.inspection.gc.ca/english/directory/offbure.shtml	CFIA Regional and District Veterinarians will provide information on reportable/transmissible animal diseases to veterinary practitioners, livestock owners and poultry producers.
BC Ministry of Agriculture and Lands Animal Health Centre 1767 Angus Campbell Road Abbotsford, BC V3G 2M3 1-800-661-9903 604-556-3003 http://www.al.gov.bc.ca/ahc/index.htm	The Animal Health Centre (AHC) is a full-service veterinary diagnostic laboratory, located in the Abbotsford Agriculture Centre in Abbotsford, British Columbia and funded by the Ministry of Agriculture and Lands.

Appendix 4 to Section 5
BC Slaughterhouses and Meat Plants



PROVINCIALLY LICENSED MEAT PLANTS
BC COASTAL/INTERIOR
As at March 3, 2009

Rodear Meats Ltd. (Red meat) 3736 Beaver Valley Rd, Box 15 Big Lake, BC V0L 1G0 250-243-2340	**Farmcrest Foods Ltd.** (Poultry) 1880-30th Street SW Salmon Arm, BC V1E 4M1 250-832-0036
Riverside Meats Ltd. (Red meat) 2945 Haines Road Salmon Arm, BC V1E 4M1 250-832-0012	**Rainer Custom Cutting** (Red meat) 7493 Darlington Creek Road General Delivery, Darfield, BC V0E 1R0 250-672-9407
Van Diemen Turkey Farm Ltd. (Poultry) 3068 10th Ave (RR#1) Keremeos, BC V0X 1N0 250-499-5890	**Spokin Lake Meats** (Red meat) 4030 Spokin Lake Road, Box 172 150 Mile House, BC V0K 2G0 250-296-4355
Kam Lake View Meats (Red meat) 6453 Buckhorn Road Lot 20, Section 19 Kamloops, BC V1S 2A1 250-828-1015	**Westholme Meat Packers Ltd.** (Red meat and poultry) 7824 Westholme Road Westholme, BC V0R 1K0 250-246-9500
Fairline Developments Canada Ltd. (Poultry) 2391 Vauxhall Place Richmond, BC V6V 1Z5 604-276-2886	**Pitt Meadows Meats Ltd.** (Red meat) 18315 Ford Road Pitt Meadows, BC V3Y 1Z1 604-465-4752
Valley Wide Meats (Red meat) 40 Matthews Road Enderby, BC V0E 1V4 250-838-7980	**Tarzwell Farms** (Red meat) 534 Williams Road Creston, BC V0B 1G8 250-428-4316
Kootenay Mobile Poultry Abattoir (Poultry) 2540 Godderis Road Cranbrook, BC V1C 7B8 250-489-5798	**Gold Creek Custom Meats** (Red meat) 3256 Gold Creek Road Cranbrook, BC V1C 6Z4 250-426-7770
Johnston Packers Ltd. (Red meat) 5828 Promontory Road Chilliwack, BC V2R 4M4 604-858-4121	**Scott's Meats Ltd.** (Red meat) RR#2, 2310 Scott Road Agassiz, BC V0M 1A0 604-796-9002
Fraser Valley Duck and Goose Farm (Poultry) 4540 Simmons Road Chilliwack, BC V2R 4R7 604-823-4435	**AGM Beef Farm Ltd.** (Red meat) 5175 184 Street Cloverdale, BC V3S 4N9 604-576-8318

Source: BC Centre for Disease Control. Complete listing at:
http://www.bccdc.org/downloads/pdf/fps/reports/Meat%20Plant%20Establishment-WEB%20VERSION.pdf

6. Finance and Administration

6.1	**General**	Provincial guidelines and regulations for financial management in an emergency are contained in the *Emergency Program Act* and its *Compensation and Disaster Financial Assistance Regulation*. Some financial information for emergency situations is also provided in the *MAL Emergency Response Plan, 2006.* It is important to note that the financial programs which apply to compensation for animal mortality in an emergency are separated between provincial programs which apply during a non-reportable disease/FAD emergency, and federal programs which apply when a reportable disease/FAD is present. In the latter case, claims are normally made directly by producers to the applicable federal agency, either through the *JEOC Compensation Unit* or under other arrangements promulgated by federal authorities. Instructions regarding compensation and application procedures will be issued during an animal health emergency by PEP and/or CFIA as applicable.
6.2	**Provincial Programs**	Producers who suffer losses through farmed animal mortalities from causes other than a FAD may be eligible for *Disaster Financial Assistance* arranged through PEP. This program is for uninsurable losses. The PEP financial guidelines applicable to farmers and ranchers are contained in *Disaster Financial Assistance Guidelines For Private Sector*. The Guidelines may be reviewed at: http://www.pep.gov.bc.ca/dfa_claims/PrivateSectorGuidelines.pdf Financial assistance from PEP may also be provided to local authorities for specified types of response and recovery costs. The PEP financial guidelines for local governments are contained in *Financial Assistance for Emergency Response and Recovery Costs – A Guide for BC Local Authorities and First Nations, September 2005 (Revised January 2008)*. This document may be reviewed at: http://www.pep.gov.bc.ca/dfa_claims/Financial_Assistance_Guide.pdf
6.3	**Federal Programs**	Owners of animals ordered destroyed during a reportable disease/ FAD emergency may be compensated directly by the federal government under the federal *Health of Animals Act* and *Regulations*. Compensation under these regulations will normally be arranged through the JEOC, or may be arranged directly

		between producers and the applicable federal agency when no JEOC has been established. The *Compensation for Destroyed Animals Regulations* establish the maximum amount of compensation payable for an animal that is required to be destroyed in an animal disease emergency. The *Regulations* are available online at: http://laws.justice.gc.ca/en/showdoc/cr/sor-2000-233/bo-ga:s_2//en#anchorbo-ga:s_2 Compensation awarded to owners is determined by an assessment of the market value of an animal and takes into consideration factors such as genetic background, age and production records. The assessment is made by a team of experts that includes the CFIA veterinary inspector and two evaluators – one chosen by the owner and the other by the CFIA. The compensation awarded is subject to maximum levels set out in the *Regulations*. The owner is awarded market value less the value of the carcass received if salvage is possible, but if the animal's market value is equal to or exceeds the maximum allowed, the owner is awarded the maximum compensation amount. Owners of animals ordered destroyed may also be awarded compensation for disposal costs including transportation, slaughter, labour, and equipment.
6.4	**First Nations**	First Nations in BC qualify for federal assistance for emergency response, including eligible costs for animal services. The provincial and federal governments have agreed to work together in providing financial assistance to First Nations. First Nations are required to prepare and submit their own claims for response costs to PEP, even if they participate with a local authority or with the Ministry in response. First Nations are subject to the same eligibility and documentation requirements for disaster financial assistance in BC that apply to local authorities (see Section 6.2 above).
6.5	**Application Procedures**	Authorization and application procedures for financial compensation will be confirmed and promulgated on an event-specific basis, by PEP and/or CFIA.
6.6	**Compensation Q&A**	Local government may expect to receive queries on compensation issues from producers who have experienced animal mortality during an emergency.

Some common *Questions and Answers* are provided at Appendix 1 to this section.

6.7 Requirement for Record Keeping

The key to receiving prompt payment of submitted response costs, disaster financial assistance or compensation claims is good record keeping. All claims must be properly documented with supporting receipts or other written justification.

The EOC for carcass disposal operations must receive and retain all mortality documentation and ensure that the following minimum items are documented:

a) names and contact numbers of person reporting animal mortality;
b) dates of disposal;
c) species of animals, numbers and locations of origin;
d) selected method of disposal and locations;
e) follow-up actions required to monitor and remediate disposal site;
f) soil and water testing results;
g) names and contact numbers of experts utilized in disposal operations; and
h) environmental assessments pursuant to *Canadian Environmental Assessment Act*.

Detailed record keeping of carcass burial sites is particularly important, including the following essential information on each site:

a) exact location in relation to a fixed point;
b) the date of burial;
c) the type and size of carcasses buried;
d) the approximate total weight of the carcasses; and
e) the cause of death.

Appendix 1 to Section 6
Compensation Questions and Answers

Q1. All of my animals were destroyed during the recent FAD emergency. How much can I expect to be compensated?

A1. Each animal is evaluated and its market value is determined; however, the compensation awarded is subject to maximum levels set out in the *Compensation for Destroyed Animals Regulations*. Permitted compensation amounts may be found in the *Regulations*. Examples of maximum compensation amounts (in Canadian dollars) for common farm stock are: Note 1

Animal Type	Amount ($C)
Cattle - registered	8,000
Cattle – non registered	2,500
Horse – ordered destroyed due to Equine Infectious Anemia	2,000
Horse – all others	8,000
Sheep - registered	1,200
Sheep – non registered	300
Swine – registered	5,000
Swine – non registered	2,000

Note 1: Amounts are as of March 23, 2009. Latest amounts can be obtained at http://laws.justice.gc.ca/en/showdoc/cr/SOR-2000-233///en?page=1

Q2. In addition to compensation for each animal destroyed during an animal disease emergency, are there other costs for which I may be reimbursed?

A2. Yes – under the *Compensation for Destroyed Animals Regulations*, owners of animals ordered destroyed may also be awarded compensation for disposal costs such as transportation, slaughter, labour, and equipment.

Q3. I believe that I have an entitlement to Disaster Financial Assistance to compensate me for animals lost in the recent wildfire emergency. How do I apply for DFA?

A3. PEP will coordinate the processing of private sector claims and will provide local advice on the application process. It can be anticipated that PEP will provide this advice to potential claimants and it may be done through newspaper notices and/or arranging public meetings in affected communities.

Q4. The horses and goats on my hobby farm were drowned in the recent floods and I can't afford to replace them. Am I entitled to Disaster Financial Assistance?

A4. In such events Disaster Financial Assistance is limited to farmers and ranchers whose livelihood is based on their farming and ranching activity.

7. Recovery

7.1	**General**	In most cases, disposal operations will be conducted within a larger emergency scenario. There will therefore be no recovery phase or process linked directly to disposal operations. Rather, it will be related to the foreign animal disease or other event within which the animal mortality occurred. The recovery phase may include activities to support restocking, re-establishing markets and rebuilding viable industry activities. Recovery serves several linked objectives, including: a) administering financial compensation for critical losses incurred (as outlined in Section 6); b) capturing lessons learned during the emergency so that they may be applied to any future emergency response; c) re-establishing the local livestock industry to pre-emergency levels and capabilities as cost-effectively as possible; and d) providing community support for those who have suffered severe impacts from the event. Environmental issues related to disposal will also be key to a successful recovery. Monitoring of disposal sites will be required over a specified period to ensure that appropriate environmental safeguards are in place and there is no degradation of the sites which could have long-term environmental impacts.
7.2	**Recovery Objectives**	Recovery objectives may include damage assessment, restoration and reconstruction, economic impact studies and financial assistance. Local authorities will lead activities designed to support animal producers, in conjunction with industry associations and other producer groups.
7.3	**Recovery Organization**	A small recovery team will be required to guide the recovery process. The composition of the team will depend on the scale and extent of the emergency, and the scale of carcass disposal. Local authorities should work closely with any provincial recovery team that may be instituted.
7.4	**After-Action Report**	On the completion of response activities an *After-Action Report* (AAR) should be prepared. The primary purpose of the AAR is to document the lessons learned from the experience.

Core questions to be addressed in the AAR include:

a) What went right?
b) What went wrong? and
c) How can we improve?

The intent of this step is not to find fault, but to uncover opportunities for improving plans, procedures, equipment, and personnel training for the district's emergency program.

The Emergency Program Coordinator is responsible for ensuring that an AAR is completed and that all documented records are complete and available for internal review.

SECTION 8 – ANNEXES

A. Animal Diseases
B. Disposal Methodology Options
C. Training Requirements

Annex A
Animal Diseases

World Organization for Animal Health (OIE) - List A

The following diseases are currently listed by the OIE as transmissible diseases that have the potential for very serious socio-economic or public health consequences, and are of major importance in the international trade of animals and animal products:

African Horse Sickness
African Swine Fever
Bluetongue
Classical Swine Fever
Contagious Bovine Pleuropneumonia
Foot and Mouth Disease
Highly Pathogenic Avian Influenza
Lumpy Skin Disease
Newcastle Disease
Peste des Petits Ruminants
Rift Valley Fever
Rinderpest
Sheep Pox and Goat Pox
Swine Vesicular Disease
Vesicular Stomatitis

CFIA Disease Strategies

Currently, the CFIA Foreign Animal Disease Manual of Procedures contains strategies for:

African Swine Fever
Anaplasmosis
Avian Influenza
Bluetongue
Bovine Spongiform Encephalopathy
Classical Swine Fever (Hog Cholera)
Foot and Mouth Disease
Newcastle Disease
Pseudorabies
Swine Vesicular Disease
Vesicular Stomatitis

Diseases with High Potential for Mass Mortality

Following is a list of diseases with high mass mortality potential. The diseases identified as zoonotic potentially present a risk to human health:

Disease	LIkelihood	Risk to Animal Health	Zoonotic Status (Risk to Human Health) (1)	Species at Risk
	Rare Unlikely Possible Likely Certain	Very Low Low Medium High Very High	Yes/No If zoonotic: (Insignificant) (Low) (Moderate) (High)	
Anthrax *(Bacillus anthracis)*	Possible	High	Yes (Moderate)	Multiple
Avian Infectious Laryngotracheitis (Herpesvirus)	Certain	Very High	No	Avian
Avian Influenza – highly pathogenic (Orthomyxovirus)	Likely	Very High	Yes (Low to High, strain dependent)	Avian
Bovine babesiosis *(Babesia bovis)*	Possible	Medium	Yes (Moderate)	Cattle
Classical Swine Fever or Hog Cholera *(Pestivirus)*	Possible	High	No	Swine
Epizootic haemorrhagic disease (Orbivirus)	Likely	High	No	Multiple
Foot and Mouth Disease *(Picornavirus)*	Possible	High	No	Multiple
Fowl Cholera *(Pasteurella multocida)*	Certain	Very High	Yes (Low)	Avian
Newcastle Disease – Velogenic (exotic) (Avian paramyxovirus)	Possible	Very High	No	Poultry
Viral haemorrhagic disease of rabbits (Calicivirus)	Possible	High	No	Lagomorph (rabbit)
West Nile Fever (West Nile virus)	Possible	Medium	Yes (Insignificant) (2)	Equine

Note 1: The risk to human health is relative (the risk posed by anthrax is higher than that for Newcastle, etc, however in an absolute sense even the risk of anthrax is low).

Note 2: Although West Nile Virus is zoonotic, infected horses present no risk to human health.

Annex B
Disposal Methodology Options

Methodology	Description
Market	The market option involves the commercial sale of non-infected animals, usually resulting from pre-emptive slaughter for the purposes of containing the spread of disease. Marketing should be undertaken whenever possible.
Rendering	Rendering of animal carcasses involves conversion of the carcasses into three end products – carcass meal, melted fat or tallow, and water – using mechanical processes (grinding, mixing, pressing, decanting and separating), thermal processes (cooking, evaporating, and drying), and sometimes chemical processes (e.g., solvent extraction). The main carcass rendering processes include size reduction followed by cooking and separation of fat, water, and protein materials using techniques such as screening, pressing, sequential centrifugation, solvent extraction and drying. Resulting carcass meal can sometimes be used as an animal feed ingredient. If prohibited for animal feed use, or if produced from keratin materials of carcasses such as hooves and horns, the product will be classified as inedible and can be used as a fertilizer. Tallow can be used in producing livestock feed or the manufacture of soaps. A satisfactory rendering process would involve grinding the raw product, solvent extraction of lipids at about 100 °C for one hour and high temperature treatment of both carcass meal and tallow for at least a further 40 minutes. The end product of rendering must pass microbiological tests before release. Rendering is a useful alternative for carcass disposal including infected animals where the service is available (the WCR plant in BC is not approved for rendering of infected carcasses). However, rendering plants have minimal surge capacity and may not be able to accept large numbers of carcasses in an emergency.
Composting	Composting is the controlled biological decomposition and conversion of solid organic material into a humus-like substance called compost that can safely be used as a soil amendment. The process is aerobic, meaning it requires the presence of oxygen. Natural microorganisms such as bacteria and fungi break down the complex organic compounds into simpler compounds. Composting methods include bin, static windrow, and in-vessel (Ag Bag). Bin composting is commonly used on-farm for disposal of routine animal mortality. It involves layering of carcass material with a bulking agent (wood chips, bedding litter) within containment walls

	with periodic turning (aeration). Windrow composting also utilizes layering of carcasses and bulking agent in long windrows 4.5 m wide, 2.1m high with 2.4m windrow spacing to allow machine access for turning. A 90m windrow would hold 55-60 cow carcasses. In-vessel composting utilizes plastic pods (Ag Bags) 3m in diameter and 66 m long. Carcasses are simultaneously ground and mixed with wood waste and loaded into the pods which are equipped with aeration pipes and ventilation ports. Each pod can hold up to 50 cow carcasses (~ 35 tonnes) and requires 325m^2 per pod. Composting is cost-effective, environmentally sound and bio-secure provided that the compost is managed correctly (e.g., high temperatures are maintained and leachate is controlled effectively). Most pathogens are destroyed during the composting process. In-barn composting is the favoured option for poultry because it limits odour, enhances bio-security and is away from view. If this is not possible, the entire process can be handled outdoors. Large animals can be successfully composted if the process is properly established and maintained. Composting also has the advantage of keeping infected material on site. Site selection is of key importance for composting operations. Considerations include: – flood prone areas, steep slopes and bedrock should be avoided; – sites should be at least 1m above the high water table and 30 m away from wells or watercourses used for domestic purposes; – sites should be on high ground with good drainage where pooling of water does not occur; – a preferred base is a concrete pad, asphalt or packed gravel, however, a field with vegetative cover can be used if it will support equipment and leachate can be effectively contained; – runoff and/or leachate must be contained to protect surface and ground water; and – sites should be shielded from public view and secure from predators. Partial composting, or bio-heat treatment, may also be used in some circumstances, particularly with poultry carcasses. Virus inactivation is achieved, but visually the end-product has not matured to the same level of biological decomposition as true compost. Ideally the bio-heat treatment would be performed in the barn. After disease inactivation the material can be brought out for safe composting in the open.

Incineration	High temperature incineration is a method of thermal destruction of both the carcass and pathogens by converting volatile gases, vapours and particulate matter into carbon dioxide, water and ash. Properly designed and operated, biological incinerators produce a stack gas that is largely free of odours and particulate matter. Fixed facility incinerators require industrial sites and should be at least one hectare per facility. Biological incinerators provide a very efficient carcass disposal system, achieving safe and complete disposal with the absence of virtually any pollution. However, their cost and lack of portability means they are unlikely to be readily available or easily accessible in many situations. Incinerators are usually only suited to disposal of small amounts of material.
Burning	Open burning of animal carcasses creates smoke that is high in particulate matter and produces offensive odours. Accordingly, it is normally suitable for only a small number of animals and is prohibited for cattle due to SRM fly-ash concerns unless it is performed on the farm where the cattle died. It may be conducted in above-ground pyres or in trenches, and requires the use of accelerants such as diesel fuel or auxiliary fuel such as wood and straw to achieve the combustion temperatures necessary for the complete destruction of animal carcasses. Due to the risk of contamination from fuels, an impermeable sil (clay) is preferred and burn sites should be removed from the public by at least three kilometres. Air curtain burning is a technique for burning material in a pit aided by fan-forced air. The equipment consists of a large capacity fan and ducting to deliver the air, which may be preheated, down into the long side of a trench. The angle of the airflow results in a curtain of air acting as a top for the incinerator and provides oxygen that produces high burn temperatures. Sufficient hot air re-circulates within the pit, achieving complete combustion. Additional fuel is required to initially establish combustion, but once operating the continuing fuel requirement is reduced. The use of misters can reduce the air emission concerns normally associated with open air-curtain technology. Air curtain burning sites require 2.5 hectares per installation and should be located a minimum of 100m from neighbouring residences and 500m from schools, hospitals and continuing care facilities. Air curtain burners are suitable for continuous operation, albeit on a relatively small scale and have the advantage of being transportable. Using an air curtain burner can significantly enhance the efficiency of open burning. Burning results in the destruction of most pathogens, reduces the volume of solid wastes and minimizes the impact on water quality. Residues left over from burning must be buried, composted or transported to a landfill. However, open burning of significant

	volumes of carcasses has a negative psychological effect on the community and when used extensively during the Foot and Mouth disease epidemic in England in 2001, it had a significant impact on tourism and the economy.
Landfill	Depositing dead animals in a local landfill has been commonly used for disposal of a small numbers of large animal carcasses or a larger number of small animal carcasses. Only landfills that satisfy requirements with respect to flooding and aquifers, engineered containment, leachate management and gas management regimes should be considered for mass carcass disposal. Carcasses disposed in a landfill undergo chemical, bacteriological, and physical changes. Depending on the material and site conditions, decomposition in a landfill can proceed very slowly over a long period of time, in widely varying temperatures that are inadequate for the inactivation of heat resistant organisms and spore formers. There is also a potential for groundwater and surface water contamination from the release of landfill leachate, and the off-site migration of carbon dioxide, and methane gases. Small amounts of poisonous and noxious gases including hydrogen sulfide may also be emitted from landfills.
Burial	Mass livestock carcass burial requirements include the need for at least four meters of soil above the water table or bedrock, and separation distances of 122 meters from any well and 50 meters from a dugout, pond, stream, river or the property boundary. Also, flood prone areas and unconfined aquifers are excluded. Burial confines the carcasses but can produce large volumes of leachate. Also, the residue within a burial site will persist for many years and ultimate elimination of the carcass material represents a long-term process. Burial must therefore be used cautiously for mass disposal. Maximum loading rate for non-emergency on-site carcass burial is 700kg per hectare per year. For mass burial in off-site locations, the loading rate will be determined by environmental considerations and must be determined in conjunction with MAL, MOE and MoHS. Experience in past emergency events suggests a loading rate not exceeding approximately 15 cattle, 90 swine, 150 sheep or 800 poultry carcasses per hectare per year, in environmentally acceptable sites, for mass carcass disposal in a major emergency. Environmental risks associated with burial include: – holding (burial) sites that result in surface and/or soil pollution and/or air pollution;

- flies or rodent attraction that results in possible disease transfer to people, livestock or wildlife; and
- attraction of predators to the site.

Important considerations for burial site selection include:

- *Access to the site*: for both equipment to dig the burial pit and for the delivery of livestock, carcasses or other materials to be buried;
- *Environmental*: distance to watercourses, bores and wells; height of water-table; proximity to buildings, especially houses; proximity to neighbours or public lands including roads; slope of the land and drainage to and from the pit; permeability of soil; sufficient space for temporary storage of overburden; and direction of prevailing wind (odour);
- *Construction considerations*: avoid rocky areas (slows digging and increases costs) but select soils with good stability capable of withstanding the weight of equipment used to construct and fill the pits. Surface runoff should be prevented from entering the pit by the construction of diversion banks if required. Similar banks should be constructed to prevent any liquids escaping from the burial site. Fencing may be necessary to exclude animals until the site is safe for use.
- *Back-filling*: it will likely be necessary to come back to the curial site several times during the course of carcass decomposition to back fill surface depression that result from the shrinking carcass mass. This is important for the purpose of avoiding water pooling right on top of the burial trench.

Gas production from decomposition within unopened carcasses may result in considerable expansion in the volume of the buried material to the extent that the surface of the closed pit may rise and carcasses may be expelled from the pit. It is recommended that large animal carcasses be opened by slashing the rumen of cattle or the caeca of horses to permit escape of gas. There appears to be little benefit in opening small animal carcasses.

Lime may be added to pits to prevent earthworms bringing contaminated material to the surface after pit closure. The carcasses must be completely covered with soil, and an unbroken layer of slaked lime [Ca (OH)2] should be added before filling is completed. Lime should not be placed directly on carcasses because it slows, and may prevent, decomposition.

Note: In case of extreme emergency, centralized, off-farm mass burial of large carcass volumes may become necessary. In such cases the following site selection criteria have been proposed:

Physical Setbacks and site Constraints

- Surface water bodies – 100m
- Domestic wells – 300m
- Provincial highways – 400m

	• Provincial roads – 100m • Railroads – 100m • Residences – 300m • Property line – 50m • Unstable areas, steep banks, cliffs, ravines – 100m • Hotels, restaurants, food processing facilities, schools churches and public parks – 300m • National parks, cemeteries, flood prone areas, rock outcrops– excluded • Underground and overhead utilities – avoid • Difficult sites for excavation such as excessive trees, rocks, and other physical obstructions – avoid • Steeply sloping land (greater than 5%) – avoid • Crown land – preferred • Reasonable truck access – required *Geotechnical / Geological Criteria and Aquifer Protection* • Minimum 5 m of low permeability soil below the base of the proposed trench with a hydraulic conductivity of 1 x 10^{-6} cm/sec or less which equates to a total depth below ground surface of 10 m for a 5 m deep burial pit. • Minimum 5 m to location of the seasonally high water table below the base of the pit which equates to a total depth of 10 m below ground surface for a 5 m deep burial pit. • Any locations above an existing aquifer are excluded based on consideration of consequence of contamination. • Potential sites should be investigated by a professional geotechnical engineer to confirm suitability based on approved geotechnical and geological criteria.
Other Potential Methodologies	<u>Fermentation</u> The process of lactic acid fermentation is simple and requires little equipment – the process needs only a tank and a grinder. Fermentation is an anaerobic process that can proceed in any sized non-corrosive container provided it is sealed and vented for carbon dioxide release. During this process, carcasses can be decontaminated and there is a possibility of recycling the final products into feedstuff. Fermentation products can be stored until they are transported to a disposal site. Carcasses are ground to fine particles, mixed with a fermentable carbohydrate source and culture innoculant, and then added to a fermentation container. Grinding aids in homogenizing the ingredients. For lactic acid fermentation, lactose, glucose, sucrose, whey, whey permeates, and molasses are all suitable carbohydrate sources. The carbohydrate source is fermented to lactic acid by Lactobacillus acidophilus. Under optimal conditions, including a fermentation temperature of about 35°C, the pH of fresh carcasses is reduced to less than 4.5 within two days. Fermentation with L. acidophilus destroys many bacteria. There may be some micro-organisms that can survive lactic acid fermentation, but these can be destroyed by heat treatment through rendering. Lactic acid fermentation creates a

	large volume of liquid waste product that is expensive to transport and for which it is difficult to find environmentally responsible uses. Gasification and Incineration A thermal process in which organic carbonaceous materials are partially combusted under limited oxygen conditions in a primary chamber. In most systems, the syngas and char will be oxidized through a secondary chamber at a higher temperature supplying heat for pre-drying of the feedstock or auxiliary heat sinks, leaving 1-3% ash. Surplus syngas from the primary chamber can be cleaned and utilized as a fuel. Gasification and incineration are two of the very few methods actually capable of and approved for cattle SRM destruction. Alkaline Hydrolysis Alkaline hydrolysis uses sodium hydroxide or potassium hydroxide to catalyze the hydrolysis of biological material (protein, nucleic acids, carbohydrates, lipids, etc.) into a sterile aqueous solution consisting of small peptides, amino acids, sugars and soaps. Heat is also applied to significantly accelerate the process. The only solid byproducts of alkaline hydrolysis are the mineral constituents of the bones and teeth of vertebrates. This undigested residue, which typically constitutes approximately two percent of the original weight and volume of carcass material, is sterile and easily crushed into a powder that may be used as a soil additive. Alkaline hydrolysis is carried out in a tissue digester that consists of an insulated, steam-jacketed, stainless-steel pressure vessel with a lid that is manually or automatically clamped. The vessel contains a retainer basket for bone remnants and other materials. The vessel is operated at up to 70 psig to achieve a processing temperature of 150°C. The process releases no emissions into the atmosphere and results in only minor odour production. The end product is a sterile, coffee coloured, alkaline solution with a soap-like odour. This method has potential for approval for cattle SRM destruction. Thermal Hydrolysis Thermal hydrolysis refers to a process in which biological material is treated with high-temperature high pressure steam. It blasts steam at material in specialized vessels at high temperatures for 30 minutes or longer in order to destroy the cell walls. The process destroys a wide range of pathogens, has a low odour and is normally completed within six hours. This method also has potential for approval for cattle SRM destruction.

Annex C
Training Requirements

All personnel involved with carcass disposal operations need training, particularly with respect to safety, health and environmental requirements. This includes all SLRD emergency and support staff and, where possible, representatives from municipalities and the local farming industry.

To ensure the validity of operational plans and the effectiveness of training, a carcass disposal exercise should be conducted once annually. The exercises can take one of the following forms, working incrementally from the simplest (Level 1) to more complicated methods.

Level	Type/Format	Structure
1	**Orientation** (Discussion-based)	The orientation exercise is conducted at an introductory level to familiarize participants with roles, plans, procedures or equipment. It is presented as an informal discussion in a group setting with little or no simulation. A variety of seminar formats can be used, including lecture, discussion, slide or video presentation or panel discussion.
2	**Tabletop** (Discussion-based)	A tabletop exercise is a facilitated analysis of an emergency situation in an informal, low-stress environment. It is designed to elicit constructive discussion as participants examine and resolve problems based on existing operational plans. Tabletop exercises lend themselves to broad discussion of policies and procedures, provide an opportunity for participating organizations and staffs to become acquainted with one another and are good preparation for more complex exercises.
3	**Drill** (Operations-based)	A drill is a coordinated, supervised exercise activity normally used to test a single specific operation or function. With a drill, there is no attempt to coordinate organizations or fully activate an EOC. Its role is to practice and perfect one clearly defined part of a response plan and to help prepare for more extensive exercises.
4	**Functional** (Operations-based)	A functional exercise is a simulated, interactive exercise that tests the capability of an organization to respond to a simulated event. This is a moderate-to-high stress activity which simulates an incident in the most realistic manner possible short of moving resources to a field site. A functional exercise is always a prerequisite to a full-scale exercise.
5	**Full-Scale** (Operations-based)	A full-scale exercise simulates a real event as closely as possible. It is an exercise designed to evaluate the operational capability of emergency management systems in a stressful environment that simulates actual response conditions and requires the mobilization and actual movement of emergency personnel, equipment, and resources.