

**REGIONAL DISTRICT OF NANAIMO  
AGRICULTURAL ADVISORY COMMITTEE  
FRIDAY, JANUARY 29, 2010  
2:00 PM**

*(Committee Room)*

**A G E N D A**

**PAGES**

**CALL TO ORDER**

**DELEGATIONS**

**Peter Alexander, Central Vancouver Island**, re Revisions to Farm Assessment

**MINUTES**

2 - ~~3~~ Minutes of the regular Agricultural Advisory Committee meeting held November 27, 2009.

**BUSINESS ARISING FROM THE MINUTES**

**COMMUNICATIONS/CORRESPONDENCE**

~~4~~ - 17 **Garry Bentham, Certified Residential Designer**, re FutureFarmsBC.

**UNFINISHED BUSINESS**

*EMERGENCY PLANNING*

18 - 100 2008 Farmed Animal Mass Carcass Disposal Plan from the RDN Regular Board Minutes of April 28, 2008

**NEW BUSINESS**

**REPORTS**

**Agriculture in the Draft Electoral Area 'A' OCP** (presentation)

**ADJOURNMENT**

**IN CAMERA**

Distribution: J Burnett (Chairperson), D Johnstone, L Biggemann, C Evans, C Springford, K Reid, A Brown, R Thompson, A Benson, J McLeod, K Marks, D Lindsay, P Thompson, P Thorkelsson, C Mason

## REGIONAL DISTRICT OF NANAIMO

### MINUTES OF THE AGRICULTURAL ADVISORY COMMITTEE MEETING HELD ON FRIDAY, NOVEMBER 27, 2009 IN THE RDN COMMITTEE ROOM

#### Present:

Director J. Burnett	Chairperson
Director J. Stanhope	Electoral Area G
C. Evans	
C. Springford	
A. Brown	Representative (North)
R. Thompson	Representative (North)
A. Benson	Representative (South)
J. McLeod	Representative (South)

#### Also in Attendance:

C. Mason	Chief Administrative Officer
P. Thorkelsson	General Manager of Development Services
D. Lindsay	Manager of Current Planning
K. Marks	Planner
Karen Sanders	Recording Secretary

#### CALL TO ORDER

The meeting was called to order at 2:09 p.m. by the Chair.

Introductions were made.

Joe Burnett provided a brief overview of the role of the Agricultural Advisory Committee (AAC). The Agricultural Advisory Committee Terms of Reference and a contact list were provided to the committee members.

#### Presentations:

Gary Rolston, Agricultural Consultant, of 'From the Ground Up' presented information on "The Draft Cowichan Valley Regional District Agricultural Plans". While the statistical information pertained mainly to the CVRD, the overall trends are consistent through central Vancouver Island.

Gary also provided a summary on the status of agriculture in the Regional District citing data from the 'Regional District of Nanaimo Agricultural Overview' (attached).

Susan Palmer, Regional Growth Strategy Consultant, presented a brief outline on the direction the Draft Regional Growth Strategy is heading with policies regarding food security and ALR lands.

**General Discussion**

A general discussion followed regarding the role of the AAC.

The next AAC meeting was confirmed as January 29, 2010.

**ADJOURNMENT**

The meeting was adjourned at 3:36 pm.

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CHAIRPERSON

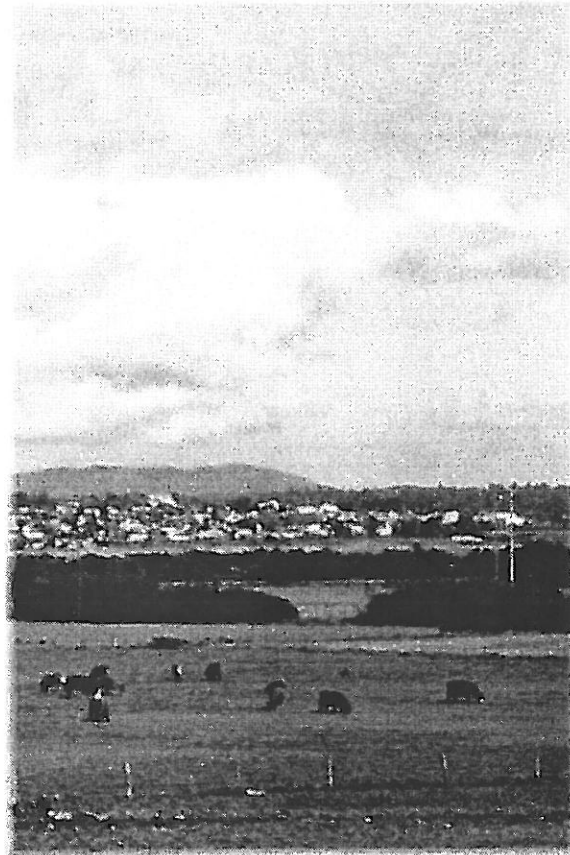
# Regional District of Nanaimo AGRICULTURAL OVERVIEW

• Corporate Name	Regional District of Nanaimo
• Date of Incorporation	August 24, 1967
- Postal Address	6300 Hammond Bay Road Nanaimo, B.C. V9T 6N2
- Phone	(250) 390-4111
- Fax	(250) 390-4163
• Toll Free Phone (within BC)	1-877-607-4111
• E-mail	corpsrv@rdn.bc.ca
• Internet	<a href="http://www.rdn.bc.ca/">http://www.rdn.bc.ca/</a>

For additional  
information visit the  
Regional District of  
Nanaimo's website.

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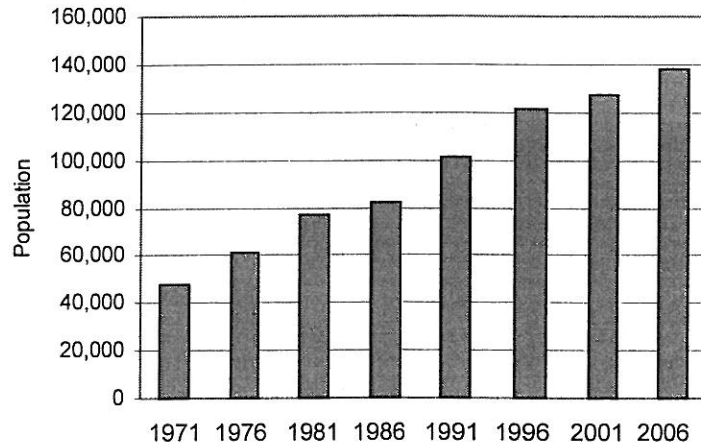


**• Population - 1971 to 2006<sup>1</sup>**

1971	=	47,535
1976	=	61,365
1981	=	77,124
1986	=	82,180
1991	=	101,736
1996	=	121,783
2001	=	127,016
2006	=	138,631

*The Regional District of Nanaimo accounted for 3.4% of BC's population in 2006.*

**Graph 1 Regional District of Nanaimo Population - 1971 to 2006 -**



**- Population Increase 1971 to 2006** = 91,096  
= 2,602 persons / year on average

**- 2006 Population within:**

Municipal Jurisdictions	=	101,848	(74%)
Electoral Areas	=	35,948	(26%)
Indian Reserves	=	835	(<1%)

**- 2006 Urban / Rural Split**

Urban	=	106,805	(77%)
Rural	=	31,826	(23%)

*The City of Nanaimo is the largest municipality in the Regional District and accounted for nearly 57% of the Regional District's population in 2006.*

*There were 461 farms reported in the Regional District in 2006. The Regional District of Nanaimo's farm population is estimated to be 1,383 persons or 1% of the Regional District's total 2006 population (based on the BC average of 3 persons per farm).*

*A similar calculation provincially sets the farm population at approximately 1.5% of B.C.'s total 2006 population.*

**• Jurisdictional Area** = 208,410 hectares<sup>2</sup>

<sup>1</sup> Ministry of Municipal Affairs, "Statistics Relating to Regional and Municipal Governments in British Columbia" - 1990 & 1998 and Statistics Canada, Ottawa - <http://www.statcan.ca/start.html>

<sup>2</sup> Ministry of Community Services, Statistics Relating to Regional & Municipal Governments in B.C. for 2007 at: [http://www.cserv.gov.bc.ca/lgd/infra/statistics\\_index.htm](http://www.cserv.gov.bc.ca/lgd/infra/statistics_index.htm)

Data source: Statistics Canada standard or custom tabulations, 1996, 2001, 2006 Census of Agriculture, unless otherwise noted.

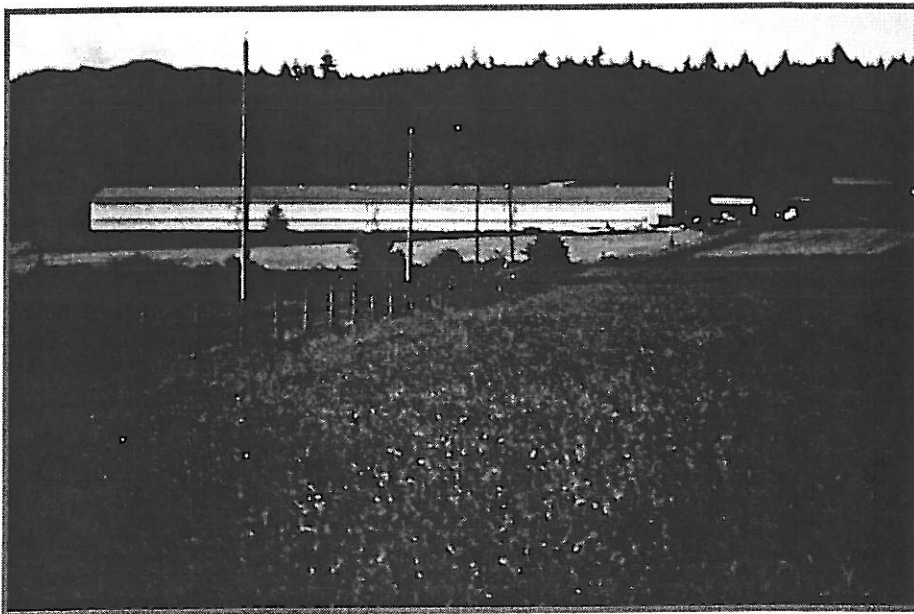
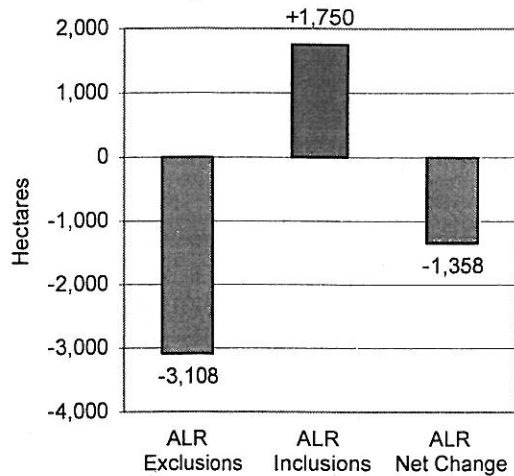
***ALR Fine Tuning Program***

*During the 1980s, the Agricultural Land Commission spearheaded a major review of the Agricultural Land Reserve on Vancouver Island. The program involved four of the six Vancouver Island regional districts, including the Regional District of Nanaimo. Considerable effort was put into a comprehensive review and updating of the Canada Land Inventory agricultural capability ratings in key areas of the Island. The Commission also worked closely with regional districts and municipalities to ensure the ALR review considered ongoing land use planning initiatives.*

*With the technical review complete, a series of ALR applications, including public consultation, finalized the process. The result was a fundamental reshaping of the ALR throughout much of Vancouver Island. In total, approximately 8,360 hectares were excluded from the ALR and 3,430 hectares were included, for a net ALR decrease of 4,930 hectares.*

*The Regional District of Nanaimo, through five ALR applications in 1985 and 1987, saw 3,108 hectares excluded and 1,750 hectares included for a net decline of 1,358 hectares from the ALR. Compared to the other three regional districts, the RDN had the most land excluded from the ALR (37% of the total) but also the most land included into the ALR (51% of the total) as a result of the fine tuning program.*

**Graph 3 - Summary -  
 ALR Fine Tuning Program  
 Regional District of Nanaimo**



# Regional District of Nanaimo AGRICULTURAL OVERVIEW

7

## • Tenure<sup>5</sup>

	<u>1986</u>		<u>1991</u>		<u>1996</u>		<u>2001</u>		<u>2006</u>	
	<u>Hectares</u>	<u>% of Total</u>	<u>Hectares</u>	<u>% of Total</u>	<u>Hectares</u>	<u>% of Total</u>	<u>Hectares</u>	<u>% of Total</u>	<u>Hectares</u>	<u>% of Total</u>
Farmland Owned	5,368	80%	6,095	79%	8,768	88%	10,485	87%	7,633	86%
Farmland Leased, etc.	<u>1,327</u>	<u>20%</u>	<u>1,591</u>	<u>21%</u>	<u>1,239</u>	<u>12%</u>	<u>1,596</u>	<u>13%</u>	<u>1,293</u>	<u>14%</u>
Total	6,695	100%	7,686	100%	10,007	100%	12,081	100%	8,926	100%

*In 2006, provincially, 55.4% of farmland was owned.*

## - Farmland Leased/Rented

	<u>1986</u>		<u>1991</u>		<u>1996</u>		<u>2001</u>		<u>2006</u>	
	<u>Hectares</u>	<u>% of Total</u>	<u>Hectares</u>	<u>% of Total</u>	<u>Hectares</u>	<u>% of Total</u>	<u>Hectares</u>	<u>% of Total</u>	<u>Hectares</u>	<u>% of Total</u>
From governments	na <sup>6</sup>	na	265	17%	128	10%	347	22%	x <sup>7</sup>	na
From others	na	na	1,326	83%	1,111	90%	1,043	65%	842	65%
Crop shared from others	na	na	na	na	na	na	206	13%	x	na
<u>Through other arrangements</u>	<u>na</u>	<u>na</u>	<u>na</u>	<u>na</u>	<u>na</u>	<u>na</u>	<u>na</u>	<u>na</u>	<u>x</u>	<u>na</u>
Total	na	na	1,591	100%	1,239	100%	1,596	100%	1,293	100%



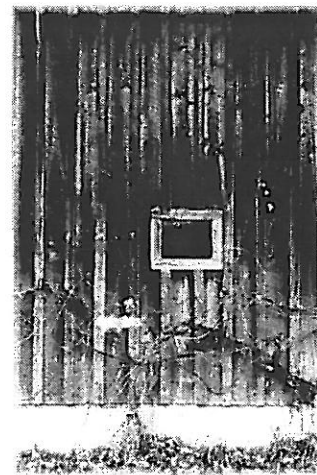
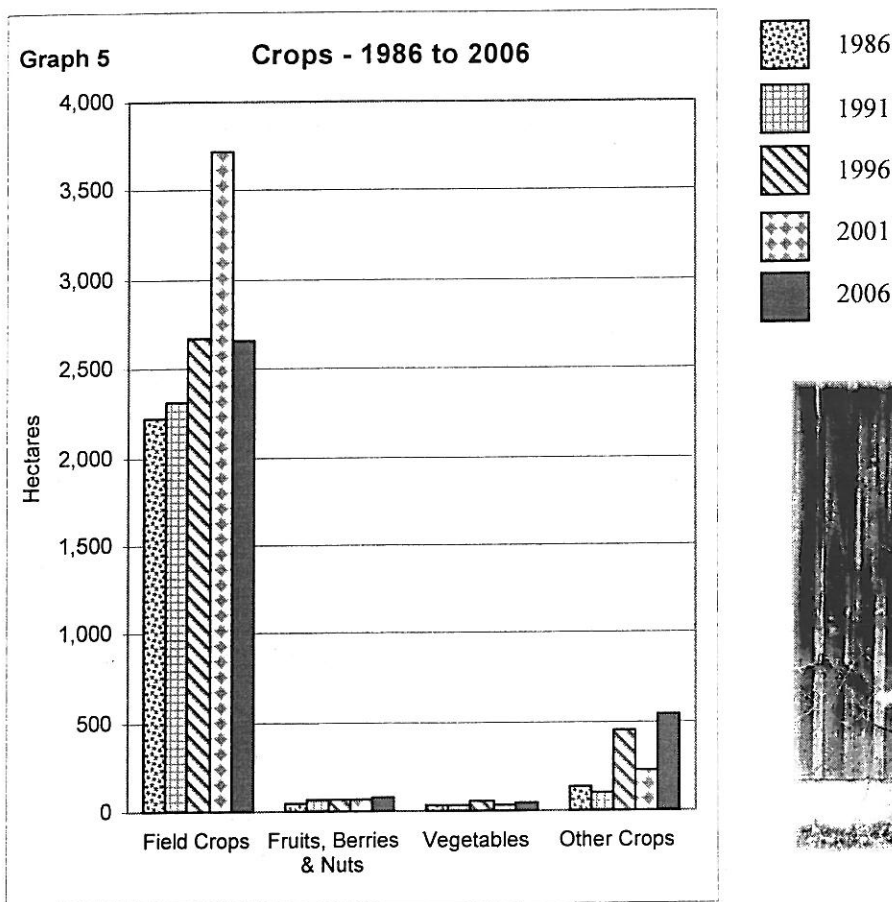
<sup>5</sup> Note: Figures related to tenure for 2006 are not comparable to previous Census data due to a significant revision to the questionnaire and reformatting of the data by Statistics Canada. For this reason, the total area farmed in 2006 (p. 6) is not the same as the total in the Tenure table.

<sup>6</sup> "na" indicates that data was not available for the year and category in question.

<sup>7</sup> Throughout the report 'x' indicates that farms are reporting but further information is not provided for reasons of confidentiality.

• **Crops (hectares)**

	<u>1986</u>	<u>1991</u>	<u>1996</u>	<u>2001</u>	<u>2006</u>
Field Crops <sup>10</sup>	2,219	2,308	2,671	3,716	2,662
Tree Fruits	24	37	40	na	na
Berries & Grapes	16	28	22	na	na
Fruits, Berries & Nuts <sup>11</sup>	na	na	na	69	83
Vegetables	38	30	55	38	49
<u>Other<sup>12</sup></u>	<u>132</u>	<u>105</u>	<u>447</u>	<u>227</u>	<u>539</u>
<b>Total</b>	<b>2,429</b>	<b>2,508</b>	<b>3,235</b>	<b>4,050</b>	<b>3,333</b>

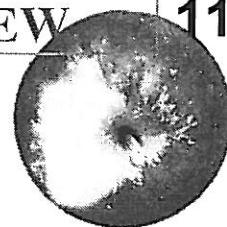


<sup>10</sup> Note: In the case of hectares in Field Crops, a total was not provided. In some cases, individual field crop area figures were not provided for reasons of confidentiality. As a result, the figures provided equal only the sum of those individual field crops in which Statistics Canada provides an area figure.

<sup>11</sup> In 1986, 1991 and 1996, data was split between 'Tree Fruits' and 'Berries & Grapes'. In 2001, this data was grouped as Fruits, Berries & Nuts resulting in no data being available (na) in this category in 1986, 1991 and 1996.

<sup>12</sup> "Other" Crops also account for area figures not provided due to confidentiality.

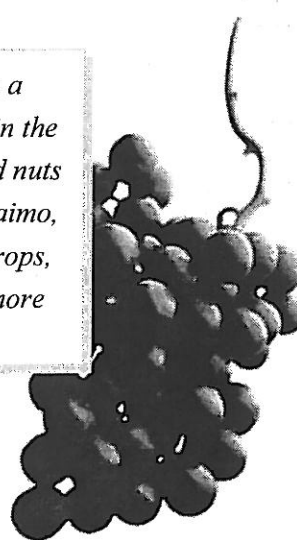




• **Fruits, Berries & Nuts**

	<u>1986</u>		<u>1991</u>		<u>1996</u>		<u>2001</u>		<u>2006</u>	
	<u>Farms</u>	<u>Hectares</u>	<u>Farms</u>	<u>Hectares</u>	<u>Farms</u>	<u>Hectares</u>	<u>Farms</u>	<u>Hectares</u>	<u>Farms</u>	<u>Hectares</u>
<b>Total</b>	<b>89</b>	<b>40</b>	<b>84</b>	<b>65</b>	<b>110</b>	<b>62</b>	<b>78</b>	<b>69</b>	<b>79</b>	<b>83</b>
Apples	50	11	38	17	60	20	50	19	40	16
Pears	43	3	26	3	41	3	19	2	19	2
Plums & Prunes	41	3	27	4	45	4	20	2	19	2
Sweet Cherries	40	2	21	2	39	2	15	x	14	1
Sour Cherries	8	1	5	0.4	7	0.8	1	x	2	x
Peaches	21	1	8	x	17	0.8	5	x	3	0
Apricots	7	x	7	x	9	x	3	x	0	0
Other tree fruits	18	1	13	10	23	9	na	na	na	na
Grapes	2	x	5	x	10	x	12	x	12	10
Strawberries	18	8	23	9	21	5	19	5	17	4
Raspberries	22	x	23	5	21	4	22	5	31	6
Cranberries	0	0	1	x	2	x	1	x	2	x
Blueberries	4	0.4	10	4	13	3	11	x	18	6
Saskatoons	na	na	na	na	na	na	1	x	1	x
Other berries	4	0.4	7	x	12	x	na	na	na	na
Other fruits, berries & nuts	na	na	na	na	na	na	26	11	29	15

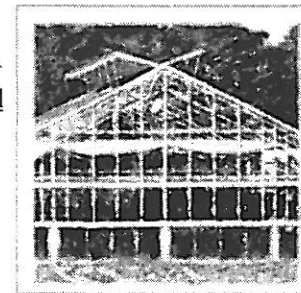
*Since 1986, there has been a decrease of 10 farms involved in the production of fruits, berries and nuts in the Regional District of Nanaimo, but the land devoted to these crops, between 1986 and 2006, has more than doubled.*



**• Greenhouse Production**

	1986			1991			1996		
	Farms	Sq. M.	% of Total	Farms	Sq. M.	% of Total	Farms	Sq. M.	% of Total
Flowers	15	11,358	85%	14	5,402	22%	26	23,977	41%
Vegetables	6	823	6%	na <sup>15</sup>	na	na	23	x	na
Other Greenhouse Products	4	729	6%	6	x	na	11	x	na
Not in Use on date of census	na	na	na	na	3,028	12%	na	656	1%
<b>Total<sup>16</sup></b>	<b>23</b>	<b>13,301</b>	<b>100%</b>	<b>30</b>	<b>25,111</b>	<b>100%</b>	<b>45</b>	<b>59,094</b>	<b>100%</b>

	2001 <sup>17</sup>			2006		
	Farms	Sq. M.	% of Total	Farms	Sq. M.	% of Total
Flowers	34	18,525	51%	34	23,828	na
Vegetables	26	7,157	20%	17	x	na
Other Greenhouse Products	19	1,719	5%	16	x	na
Not in Use on date of census	na	x	na	na	x	na
<b>Total<sup>16</sup></b>	<b>57</b>	<b>na</b>	<b>100%</b>	<b>54</b>	<b>x</b>	<b>100%</b>



	1986		1991		1996		2001		2006	
	Farms	Ha.	Farms	Ha.	Farms	Ha.	Farms	Ha.	Farms	Ha.
<b>• Nursery Products</b>	12	28	24	34	46	55	56	56	38	49
<b>• Sod Grown for Sale</b>	1	x	3	8	5	25	5	24	3	17
<b>• Christmas Trees</b>	na	na	na	na	20	173	12	78	18	48
<b>• Maple Tree Taps</b>	na	na	na	na	na	na	0	0	5	702

<sup>15</sup> In 1991 the Census of Agriculture did not provide an overall figure for area of greenhouse vegetables but did indicate that within the Regional District of Nanaimo there were 4,565 sq. m of greenhouse tomatoes and 2,616 sq. m. in greenhouse cucumbers and 2 farms growing greenhouse lettuce.

<sup>16</sup> Note: A single greenhouse may be engaged in more than one form of production.

<sup>17</sup> The 2001 Census of Agriculture does not provide a total for area under glass in the Regional District as a whole. By adding up the sq. metres for individual census subdivisions within the Regional District where data is provided, there were 36,162 sq. metres under glass in these areas. It can be concluded, therefore, that the Regional District of Nanaimo had at least this amount of land under glass in 2001. Figures for greenhouses growing flowers, vegetables and other greenhouse products in 2001 were similarly calculated.

## • Land Management Practices

	1986		1991		1996		2001		2006	
	<u>Ha.</u>	<u>% of Farmland</u>	<u>Ha.</u>	<u>% of Farmland</u>	<u>Ha.</u>	<u>% of Farmland</u>	<u>Ha.</u>	<u>% of Farmland</u>	<u>Ha.</u>	<u>% of Farmland</u>
• Irrigation	413	6%	470	6%	891	9%	703	6%	902	11%
• Commercial Fertilizers	2,172	32%	2,245	29%	3,170	32%	2,851	24%	2,735	33%
• Manure <sup>18</sup>	na	na	1,510	16%	1,258	13%	1,207	10%	983	12%
• Herbicides	223	3%	196	3%	999	10%	923	8%	1,249	15%
• Insecticides & Fungicides <sup>19</sup>	128	2%	138	2%	na	na	na	na	na	na
• Insecticides	na	na	na	na	236	2%	154	1%	311	4%
• Fungicides	na	na	na	na	114	1%	195	2%	235	3%

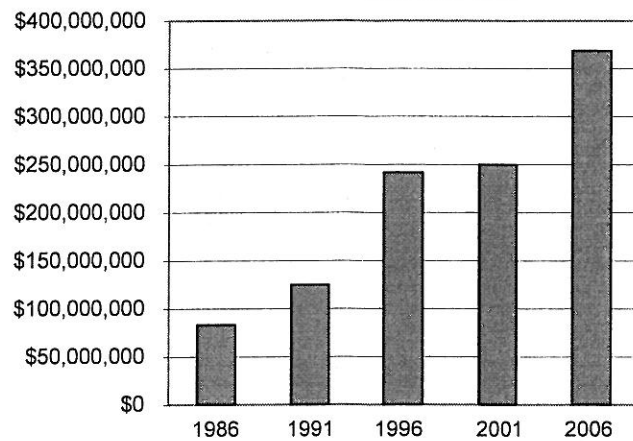
## • Total Farm Capital

1986 =	\$83,236,767
1991 =	\$124,980,243
1996 =	\$241,929,105
2001 =	\$249,031,421
2006 =	\$369,169,959

*About 96% of the increase in the total farm capital in the Regional District of Nanaimo between 1991 and 2006 (years of available data) is attributable to increases in the value of land and buildings.*

**Graph 6**

**Total Farm Capital - 1986 to 2006 -**



### Division of Capital - 2006 (only)

	<u>Value (\$)</u>	<u>% of Total</u>
• Land and Buildings	\$340,664,601	92%
• Farm Machinery & Equipment	\$24,138,529	7%
• Livestock & Poultry	\$4,366,829	1%

<sup>18</sup> In the case of some forms of manure application, data was not provided. Figures represent only where data is provided.

<sup>19</sup> In the 1986 and 1991 Census of Agriculture, insecticides and fungicides were grouped together but split in 1996, 2001 and 2006.

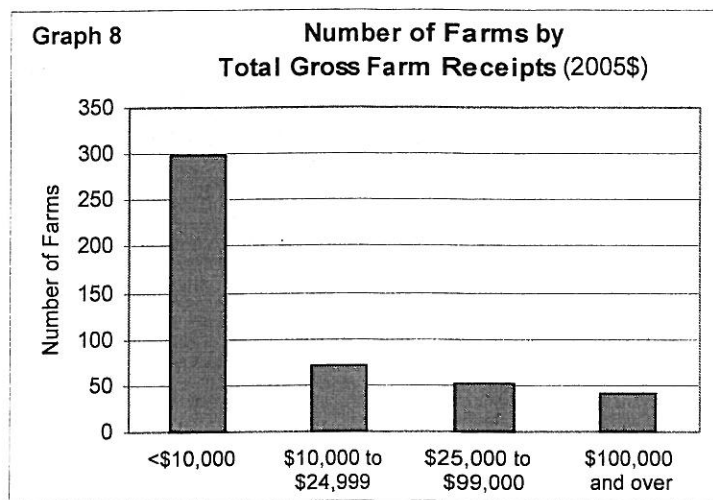
Data source: Statistics Canada standard or custom tabulations, 1996, 2001, 2006 Census of Agriculture, unless otherwise noted.

**- Number of Farms by Total Gross Farm Receipts 2006 (2006\$)**

	<u>Regional District of Nanaimo</u>		<u>British Columbia</u>	
	<u>Farms</u>	<u>% of RD Total</u>	<u>Farms</u>	<u>% of BC Total</u>
< \$10,000	299	65%	9,466	48%
\$10,000 - \$24,999	71	15%	3,194	16%
\$25,000 - \$99,999	51	11%	3,629	18%
\$100,000 & over	40	9%	3,555	18%
Total	461	100%	19,844	100%

**• Total Operating Expenses & Cash Wages Paid**

	<u>Expenses</u>	<u>Wages</u>
1985\$	= \$8,953,572	\$1,437,777
1990\$	= \$13,239,021	\$2,504,456
1995\$	= \$18,317,094	\$3,591,970
2000\$	= \$17,323,886	\$3,717,703
2005\$	= \$21,274,867	\$4,932,014



**• Total Paid Labour (weeks)**

	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2005</u>
Total Paid Labour (weeks)	4,829	6,727	8,897	7,681	8,470

**- Year Round vs. Seasonal Paid Labour**

% Year Round	61%	66%	52%	57%	52%
% Seasonal	39%	34%	48%	43%	48%
<i>% Year Round British Columbia</i>	47%	51%	57%	62%	63%



### Sources:

- Statistics Canada, British Columbia Agriculture, 1986, Census Catalogue 96-112.
- Statistics Canada, Small Area Data British Columbia, July 1992.
- Statistics Canada, 1996 Census of Agriculture Profile Data - British Columbia.
- Statistics Canada, 2001 Census of Agriculture Profile Data - British Columbia
- Statistics Canada, 2006 Census of Agriculture - Farm data and farm operator data.
- Ministry of Municipal Affairs Recreation and Culture, Statistics Relating to Regional and Municipal Governments in British Columbia, 1990.
- Ministry of Municipal Affairs, Municipal Statistics (including Regional Districts), March , 1998.
- Correspondence: Ministry of Community Services
- Statistical Reports and Files of the Provincial Agricultural Land Commission.

### Sources: Photos and Illustrations

All photos and illustrations are from the BC Ministry of Agricultural and Lands with the exception of the following:

- Page 2 - Map - Regional District of Nanaimo website at: <http://www.rdn.bc.ca/?w=319>
- Page 4 - ALR Map produced by the Resource Management Branch. Data provided by Integrated Land Management Bureau, Ministry of Agriculture and Lands.
- Page 7 - B. Smith
- Page 10 - B. Smith
- Page 14 - BC Archives: Call No. B-07873 and B. Smith (Beef Cows)
- Page 16 - B. Smith (Barn Window)

## WANT MORE INFORMATION ABOUT AGRICULTURE IN B.C.?

### See:

the Ministry of Agriculture and Lands at:

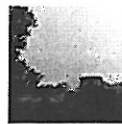
<http://www.al.gov.bc.ca>

the Provincial Agricultural Land Commission at:

<http://www.alc.gov.bc.ca>

Agriculture and Agri-Food Canada at:

<http://www.agr.gc.ca/>



Agriculture and  
Agri-Food Canada

Agriculture et  
Agroalimentaire Canada

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Sustainable Agriculture  
Management Branch



Ministry of  
Agriculture and Lands

July 2008





**Future Farms BC**

Future Farms BC is a bold community planning concept that brings together partners to create healthy & sustainable residential, agricultural, retail & tourism entities, in a planned strata farming community.

#### Goals

To improve the profitability, efficiency and sustainability of BC's Agriculture and food processing industries

To position BC as a world leader in community farming practices

To improve the sustainability of BC's land base and natural resources

To improve land use planning in BC

To provide more small business opportunities for British Columbians

To provide more healthy communities for BC families



Shaping the way we plan for tomorrow





### What is a Strata Farm

A Strata Farm is an integrated community established on agricultural land.

A Strata Farm community brings together resident proprietor farmers and food processors on one large common property where they work together to create economic wealth.



### What is included in the Future Farms Design Concept

- Agricultural space & landscape design plans
- Copyright building and design scheme
- Copyright residential housing plans
- Socially responsible design for the management of land and water resources
- Food processing infrastructure design
- Product systems distribution and storage facilities design
- Retail operations infrastructure design
- Tourism and recreation space planning
- Waste management infrastructure & energy conservation principles
- Calculations to Maximize harvest & product utilization equations
- Organizational structure for strata management
- Sustainable wind and water power resource management

*(Future Farms BC is a copyrighted design scheme)*

### How will Future Farms Improve Land Use in BC?

At Future Farms BC we believe that BC Farmers will produce greater results and produce higher profits, and protect market share when they employ collective farming strategies and share their collective business acumen. Strata farming is a supportive team based approach to improving farming practice, increasing income, and branding agricultural products by creating collaborative marketing strategies that positions owners as partners rather than competitors in a highly competitive and challenging agricultural marketing place.

### Who Would be Interested in Future Farms BC?

Strata farms will attract interest from:

Individuals concerned with environmental protection, healthy community living and sustainable foods sources.

Families who are interested in establishing a business where they live. Investors who understand that an investment into the long term sustainability of natural resources is the best investment into our future as a Province.

Local, provincial and federal agencies interested in:

- Sustainable land use planning
- Attracting new investment and tax revenue
- Healthy community design
- Environmental sustainability
- Long term protection of food sources
- Business and job opportunities for their citizen



### BC's Agri-Food Industry

British Columbia's agri-food industry is diverse and vibrant, providing safe, high quality food to people in BC, and around the world. The value of shipments from BC food and beverage processors, wholesale sales of BC farm and food products and domestic retail and restaurant sales of BC food products amount to more than \$33 billion in receipts for this industry.

A further \$2.4 billion worth of food products are exported. The agri-food industry also provides other benefits including agri-tourism, recreation and scenic amenities.

The need to sustain this important sector of our provinces economy is essential. Future Farms BC provides new approaches to managing BC agri-food industry in environmentally sensitive and sustainable way.

### Future Farms BC mission is;

"To create sustainable communities, generate economic wealth, preserve our natural land base and create jobs and lifestyle opportunities for generations of BC citizens."



## BC Agriculture and Food Industry at a Glance

### Agriculture

Sales (2005): \$2.4 billion

Jobs (2005): 36,300

### Food Processing

Sales (2005): \$6.7 billion

Jobs (2005): 31,500

### Farm and

Food Exports (2005)

\$2.4 billion

### Food Retail and

Food Service Industry

Sales (2004): \$16.1 billion

Jobs (2005): 196,730

### Food Wholesaling

Sales (2004): \$9.9 billion

Jobs (2005): 13,500

*(Source; Ministry of Agriculture and Lands 2006)*



## What Makes Future Farms BC Unique?

Future Farms BC is a fresh approach to comprehensive land use designed for farm properties of 90 acres or more.

Although the concept of coop farming is not new, the Future Farms BC concept is and has never been designed as a unified master plan.

The Future Farms BC model considers efficient land use principals, environmental sustainability, and healthy community outcomes.

Futures Farms BC planners believe that this concept will become a new standard for farming and living that will change the concept of the family farm in BC in ways that are positive, sustainable, environmental friendly and economically prosperous.

**Future Farms BC is creating a new way to live, manage our land base, create job opportunities, sustain our environment and preserves the agricultural industry that has been a critical component of the BC economy of over 150 years.**



## Who Designed Future Farms BC?

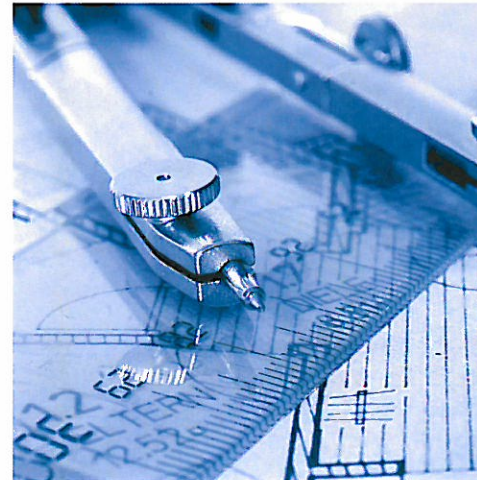
Village Design and Drafting, Parksville BC. President and CEO Garry Bentham Garry Bentham possess over 35 years experience in;

- Building technology and design
- Landscape design and drafting
- Land Surveying experience
- Agricultural land use planning and design
- Construction estimates & quantity surveying
- Property development including developing land use reports and plans per zoning by-laws
- Licensed Realtor – retired
- Farmer: horse breeder & trainer

Village Design and Drafting can develop a Future Farm scheme based on the unique characteristics and needs of a particular community or developer anywhere in BC or beyond.

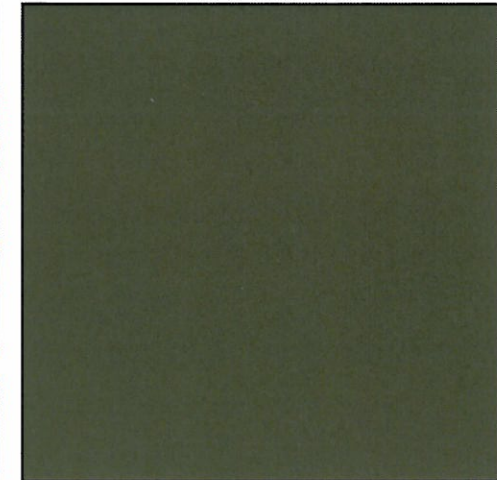
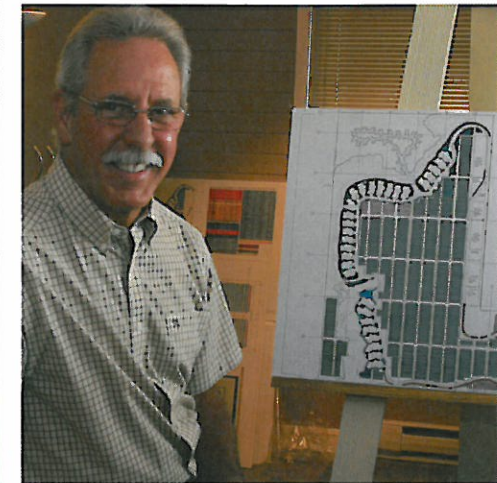
Village Design and Drafting specialize in the design and creation of Residential Farm Business Communities.

Garry's first Future Farm master plan design was on a 91 acre parcel and included thatch roof buildings, European architecture with a blend of new world and green building technology.

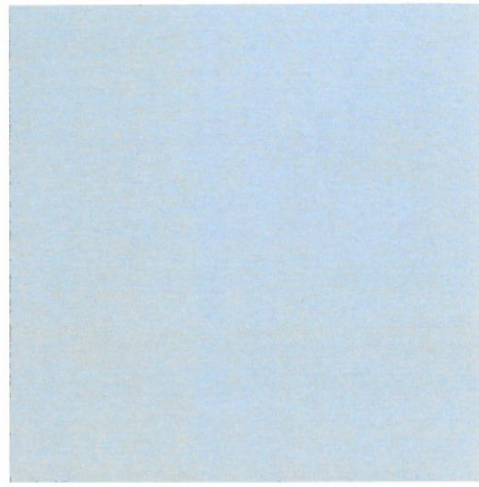


Applied Science  
Technologists & Technicians  
of British Columbia

**AST** technology professionals™







## Why Is Future Farms BC Good For Communities?

Provides the most efficient way to use land

**Establishes new Tax resources**

Creates Job and Business opportunities

**Will strengthen local and provincial economy**

Supports healthy lifestyles

**Supports proprietor stewardship of underground water courses, rivers, creek and streams**

Commits strata farmers to respect our critical provincial resources

**Socially responsible planning**

Environmentally friendly way to live, farm and operate a business



## BC Government Agricultural And Land Goals

Source Ministry Agricultural and lands 2008 – 2011 Service plan

**Goal 1: Agriculture, aquaculture and food sectors, and Crown land-use contribute positively to the economic well-being of the Province**

“Long-term prosperity for British Columbia’s agriculture, aquaculture and food sectors is only possible if they are profitable, sustainable and support public health and environmental goals. This goal also recognizes the benefits of promoting healthy local food in support of overall societal well-being. Crown land is a strategic resource that British Columbians increasingly expect to be utilized in a manner that best responds to current and emerging needs. More than ever, initiatives to promote economic opportunity are evaluated based on their ability to deliver a broad range of economic, social and environmental benefits in an efficient manner.”

**Goal 2: World-leading environmental stewardship in Crown land management, agriculture, aquaculture and food practices**

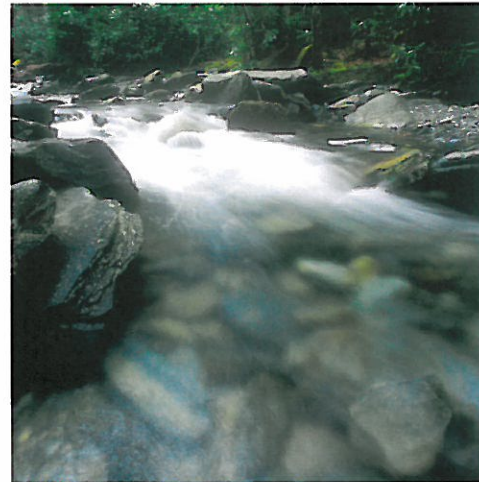
“High-quality environmental stewardship is a public expectation and essential if British Columbia is to achieve a sustainable flow of benefits from its limited agricultural land base and diverse Crown land base.”

**Goal 3: Socially responsible management of land and water resources**

“Agricultural (private and Crown) land and water are strategic resources that British Columbians expect will be managed in a manner that is socially responsible and environmentally sustainable, enhancing the overall quality of life for all British Columbians.”

The above goals are excerpts from the BC government Ministry of Agriculture & Lands Service Plan <http://www.bcbudget.gov.bc.ca/2008/sp/al/default.html#10>

**Futures Farms BC supports the attainment of all three of these important Provincial goals.**



## FutureFarmsBC

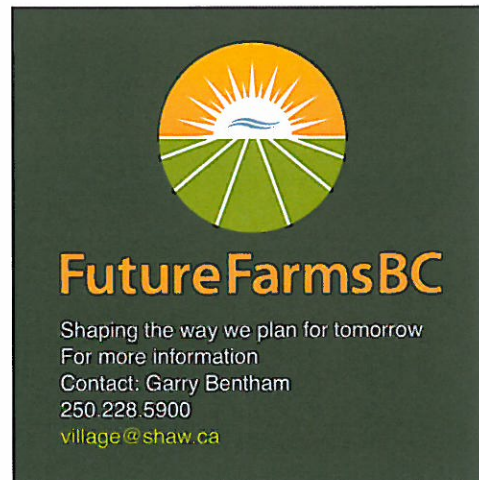
Shaping the way we plan for tomorrow

For more information

Contact: Garry Bentham

250.228.5900

[village@shaw.ca](mailto:village@shaw.ca)





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**TO:** Paul Thorkelsson  
General Manager of Development Services.      **DATE:** March 11, 2009

**FROM:** Jani Thomas, Emergency Coordinator      **FILE:** 1855-03 EMPL

**SUBJECT:** **2008 UBCM Grant Project – Farmed Animal Mass Carcass Disposal Plan**

---

**PURPOSE**

To inform the Board of the newly completed 2008 Farmed Animal Mass Carcass Disposal Plan.

**BACKGROUND**

In May 2008, UBCM announced the Farmed Animal Mass Carcass Disposal Emergency Planning Program funded by the Ministry of Agriculture and Lands through the Investment Agriculture Foundation. The objective of the Grant is to improve the preparedness of local governments to handle mass carcass disposal generated by an emergency event. The purpose of the program provides funding to local governments to amend emergency plans to deal with situations such as the Avian Flu outbreaks and address dead stock resulting from natural disasters.

Section 2(10) of the *BC Local Authority Emergency Management Regulation-1995* requires local governments to prepare emergency plans that reflect the local government's assessment of the relative risk of occurrence and the potential impact on people and property of the emergency. The *Ministry of Agriculture and Lands Emergency Response Plan 2006* states that local plans should allow for timely and efficient disposal of dead stock to minimize impacts on human, environmental and livestock health.

The primary purpose of the plan is to guide response within the Regional District of Nanaimo (RDN) for dealing with mass animal carcasses generated in an emergency. The plan is designed to enhance the RDN's capacity to recover quickly from a mass animal carcass emergency and reduce the impact on the local agriculture industry. The primary objectives of a carcass disposal operation are to prevent the dissemination of infection and to protect the environment.

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 RDN, and a list of resources and capabilities which may be utilized in an emergency response.

The scope of the plan includes:

- a) a description of the agriculture in the RDN 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.

### **ALTERNATIVE**

1. To receive this report for information.
2. To not receive the report for information.

### **DEVELOPMENT IMPLICATIONS**

The RDN's *Hazard Vulnerability Risk Analysis (2009)* indicates that 'epidemics' (either human or animal) are ranked as moderate risk, with occasional frequency and severe impact. Future development includes meeting with regional stakeholders to discuss the plan and its potential implementation in an actual emergency.

### **SUMMARY/CONCLUSIONS**

Funds were made available to local governments to prepare a Farmed Animal Mass Carcass Disposal Plan in response to several significant poultry outbreaks in the Lower Mainland in recent years. The RDN utilized the Grant to produce a Plan that takes into account farmed animal-related threats to human health and the environment; identifies resources and key personnel; identifies methods of utilizing resources and outlines activities that must be performed in the event of an emergency. Copies of the Plan can be obtained by contacting the RDN Emergency Coordinator.

### **RECOMMENDATION/S**

That the report and the 2008 Farmed Animal Mass Carcass Disposal Plan be received for information.



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Report Writer

---

General Manager Concurrence

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CAO Concurrence



# FARMED ANIMAL MASS CARCASS DISPOSAL EMERGENCY PLAN

for the

REGIONAL DISTRICT OF NANAIMO

**Version 1  
December 2008**

# FARMED ANIMAL MASS CARCASS DISPOSAL EMERGENCY PLAN

for the

REGIONAL DISTRICT OF NANAIMO



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

by

**St. John & Associates Projects Inc.  
56898 McGuire Road  
Chilliwack, BC V2R 4S1  
Tel/Fax: 604-858-3278  
[stjohnprojects@uniserve.com](mailto:stjohnprojects@uniserve.com)**

### RECORD OF AMENDMENTS

Date	Amendment No.	Entered By

## CARCASS DISPOSAL EMERGENCY QUICK REFERENCE DIRECTORY

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### REGIONAL DISTRICT OF NANAIMO

Emergency Coordinator  
250-390-6526

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### 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 Agrologist (Duncan)  
250-356-2521

---

### BC MINISTRY OF ENVIRONMENT

Environmental Emergency Management Program  
250-387-8319  
Vancouver Island Regional Office  
250-751-3100

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### CANADIAN FOOD INSPECTION AGENCY

Parksville District Office  
250-248-4772  
District Veterinarian (Victoria)  
250-363-3097

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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

<b>AAR</b>	After Action Report
<b>ALR</b>	Agricultural Land Reserve
<b>BCAS</b>	British Columbia Ambulance Service
<b>BCERMS</b>	British Columbia Emergency Response Management System
<b>CCG</b>	Central Coordination Group
<b>CFIA</b>	Canadian Food Inspection Agency
<b>EA</b>	Electoral Area
<b>EOC</b>	Emergency Operations Centre
<b>FAD</b>	Foreign Animal Disease
<b>FADES</b>	Foreign Animal Disease Emergency Support
<b>INAC</b>	Indian and Northern Affairs Canada
<b>JEOC</b>	Joint Emergency Operations Centre
<b>MAL</b>	Ministry of Agriculture and Lands
<b>MOE</b>	Ministry of Environment
<b>MOH</b>	Ministry of Health
<b>MOT</b>	Ministry of Transportation and Infrastructure
<b>PAB</b>	Public Affairs Bureau
<b>PEMO</b>	Peninsula Emergency Measures Organization
<b>PEP</b>	Provincial Emergency Program
<b>PREOC</b>	Provincial Regional Emergency Operations Centre
<b>RDN</b>	Regional District of Nanaimo
<b>SRM</b>	Specified Risk Material
<b>VIHA</b>	Vancouver Island Health Authority

# 1. Introductory Material

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## 1.1 Purpose and Scope

The primary purpose of this plan is to guide response within the RDN 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 RDN, 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 RDN 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 RDN jurisdictional area only and does not include the municipalities of Nanaimo, Lantzville, Parksville and Qualicum Beach. However, all livestock within the RDN area is considered when calculating livestock totals within the regional district.

## 1.2 Responsibility for the Plan

This plan will be maintained by the RDN Emergency 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) RDN Emergency Plan;
- b) Emergency Response Plan for BC MAL, 2006; and
- c) [FADES – Foreign Animal Disease Emergency Support Plan \(2008 Interim Plan\)](#)

**1.6 RDN Emergency Structure**

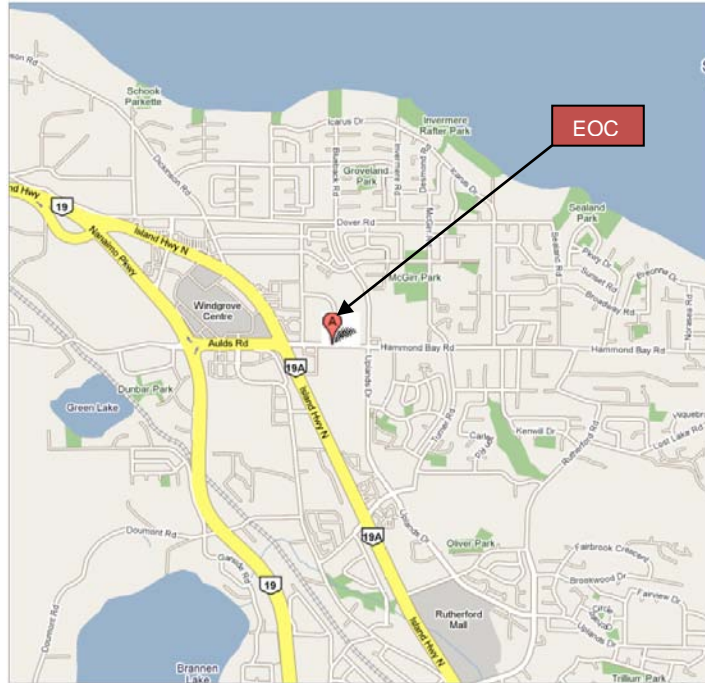
The overall emergency management structure within the RDN is as follows:

- a) Electoral Areas.
  - The electoral areas are jurisdictional areas in accordance with the *Emergency Program Act*. The RDN is both the local government and the local authority for the electoral areas.
  - The RDN Emergency Plan covers the electoral areas.
- b) Municipalities.
  - The four municipalities within the RDN 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.
  - For an emergency that extends beyond the scope of the RDN, an Emergency Management Agreement has been signed with the municipalities of Parksville, Nanaimo, and Qualicum Beach to better aid in the event of a region wide disaster. This partnership enables the sharing of resources, and coordinated efforts to assist the public.

**1.7 EOC Locations**

The locations of the RDN primary and alternate EOCs are as follows:

**RDN Primary EOC**



6300 Hammond Bay Road  
Nanaimo, BC

Alternate EOCs are located at:

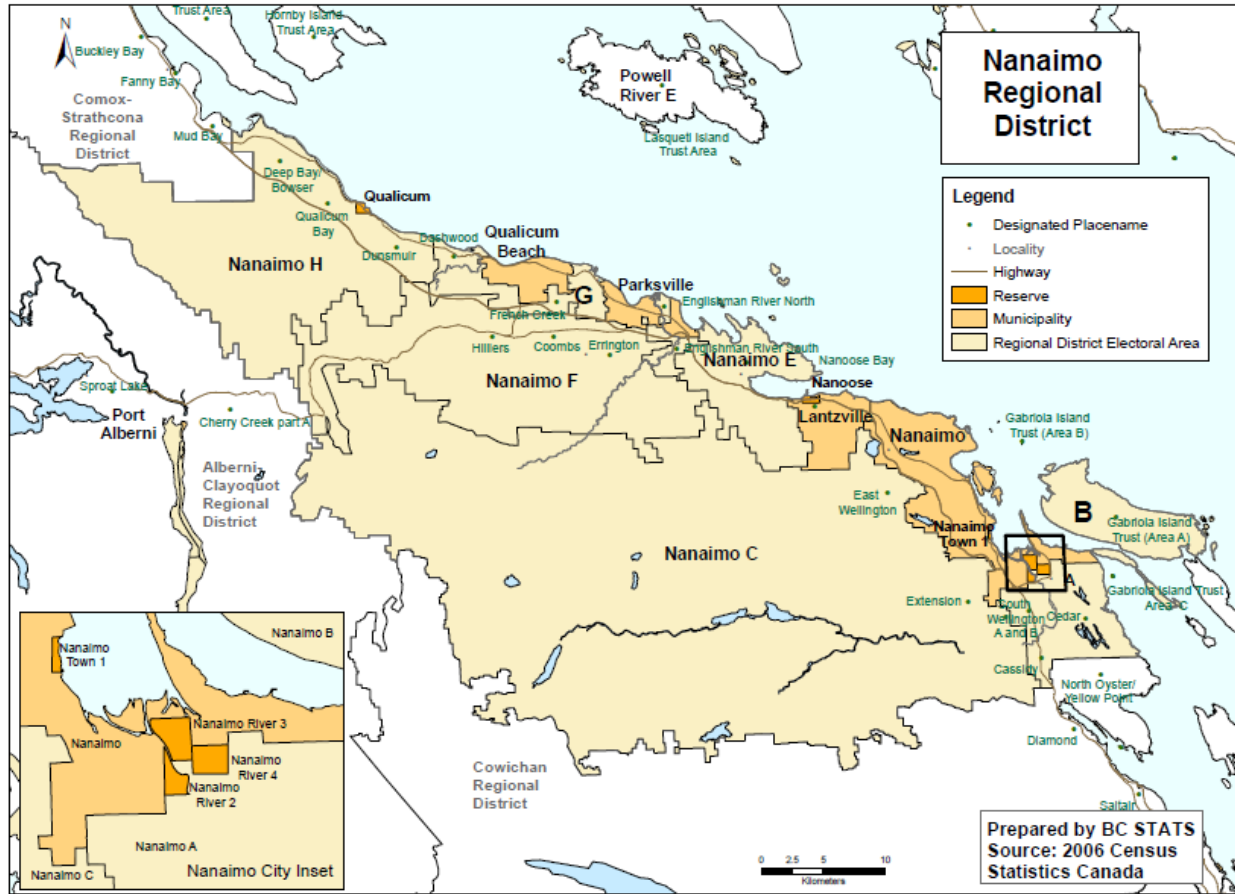
- a) 1555 Morden Road, Nanaimo; and
- b) 220 Lions Way, Qualicum Beach.

**1.8 Activation of Plan**

The requirement to activate this plan will be determined by the RDN Emergency Coordinator, in consultation with PEP and MAL.

<b>FOR ACTIVATION OF THIS PLAN, CONSULT WITH:</b>
<b>Provincial Emergency Program</b> <b>1-800-663-3456</b> <b>(24 hours)</b>
<b>Ministry of Agriculture and Lands</b> <b>604-556-3100</b> <b>(Business hours)</b>

Appendix 1 to Section 1  
RDN Area Map



**REGIONAL DISTRICT OF NANAIMO**

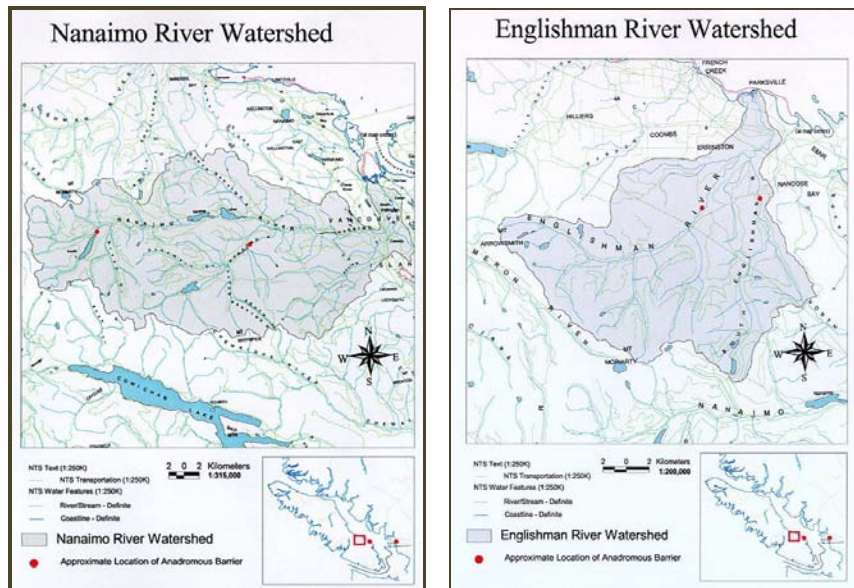
The RDN consists of four municipalities and seven electoral areas. Although this sub-plan does not apply to the four municipalities, livestock located within the entire region has been considered when calculating RDN totals and the resource requirements for a carcass disposal emergency.

## 2. Local Area Data

### 2.1 Local Agricultural Profile

The RDN is situated principally on a narrow coastal plain which contains a substantial amount of productive agricultural land. The terrain in plain area is gently rolling and relatively uniform, characterized by many low ridges separated by narrow valleys.

The western area of the district is dominated by high terrain, with several peaks over 5,000 feet. The Nanaimo and Englishman river systems intersect the district, with several smaller river systems in the north. Both main river systems are prone to flooding at certain times of the year, although the floods are normally not of sufficient magnitude to threaten livestock.



The climate of the RDN is characterized by rainy winters and warm, dry summers typical of the Pacific Northwest. Cyclonic storms are responsible for the majority of the precipitation in the area. An increase in high pressure systems in summer, in conjunction with the rain shadow created by the Olympic peninsula to the south, results in significantly less measureable precipitation in summer than in winter.

The average annual daily temperature is 13.9°C, with the highest daily average in July (22.8°C) and the lowest in January (0.7°C). Average annual rainfall is 1103.9 mm/43.5", with majority occurring during the period Nov-Feb (661.4 mm/26.1").

Agricultural activity extends throughout the RDN although the

majority of livestock operations are found in central area of the district, lying to the south of the Qualicum Beach/Parksville conurbation.

The total farmed area in the RDN is approximately 8,282 hectares, comprising 461 farms of all types. The average farm size is 18 hectares. The ALR accounts for about 9% of the RDN jurisdictional area .

Livestock operations in the RDN are diverse, with numerous small farms and several large commercial livestock operators. Poultry operations have the largest number of farms (239). Other major livestock operations include cattle and dairy farms (138) and horse farms (119). There are smaller numbers of sheep and pig farms, and some specialty farming. All nature of field crops are grown, with hay and fodder crops in support of livestock operations representing the majority.

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

Species	No. of Farms	No. of Animals
Cattle and calves	138	3,326
Sheep and lambs	69	1,645
Poultry (all types)	239	96,349
Horses and Ponies	119	632
Pigs	30	267
Goats	25	149
Llamas and Alpacas	27	402

**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 RDN are at Appendices 2 and 3.

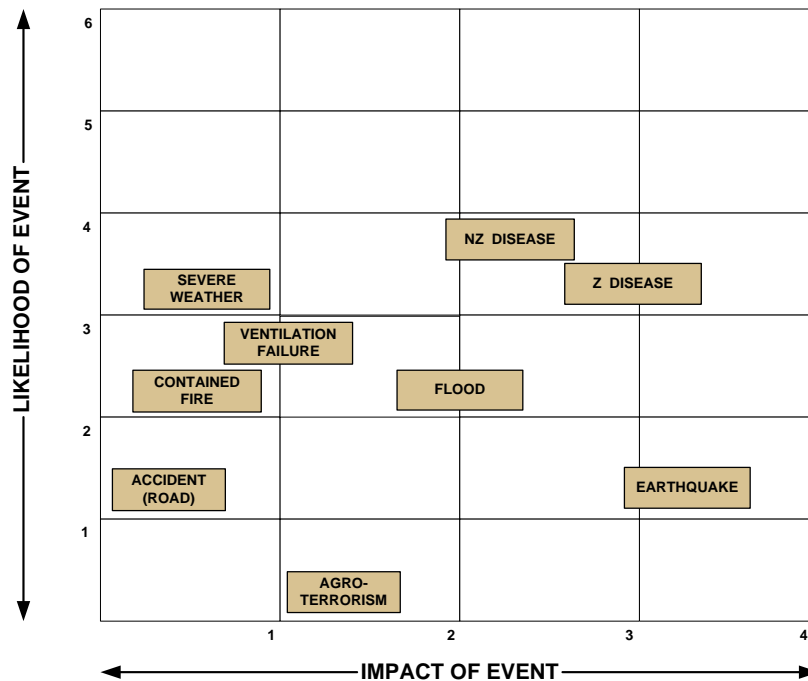
Additional data for the area may be found in *Regional District of Nanaimo – Agricultural in Brief*, published by the Ministry of Agriculture and Lands, available on line at:

<http://www.al.gov.bc.ca/resmgmt/sf/agbriefs/Nanaimo.pdf>



**2.2 Risk Profile**

The risk profile for farmed animal mass mortality in the RDN is illustrated below (see Notes 1 and 2):



**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>

**Note 2:** A new HRVA for RDN is currently being developed (Dec 08), which may change the relative positions of hazards shown on the grid.

**2.3 History of Mass Animal Mortality in the RDN**

There is no record of animal mortality in the RDN 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 Ministry of Agriculture and Lands 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 an animal health / carcass disposal emergency. The Agri-team member contacts for the RDN are:

**Regional Agrologist**

BC Ministry of Agriculture and Lands  
 5785 Duncan Street  
 Duncan, BC V9L 5G2  
 250-746-1210

**ALR Planning Officer**

BC Agricultural Land Commission  
 133-4940 Canada Way  
 Burnaby, BC V5G 4K6  
 604-660-7020

Current contact information for all MAL Agri-team member may be found at: [www.al.gov.bc.ca/resmgmt/sf/contacts.htm](http://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
<p><b>BC Milk Producer's Association</b>                  3236 Beta Avenue                  Burnaby, BC V5G 4K4                  604-294-3737 or 1-877-462-2672  <a href="mailto:contactus@bcmilkproducers.ca">contactus@bcmilkproducers.ca</a></p>
POULTRY
<p><b>BC Chicken Marketing Board</b>                  101-32450 Simon Avenue                  Abbotsford, BC V2T 4J2                  604-859-6828  <a href="mailto:info@bcchicken.ca">info@bcchicken.ca</a></p>
BEEF
<p><b>BC Cattlemen's Association</b>                  #4-10145 Dallas Drive                  Kamloops, BC V2C 6T4                  250-573-3611  <a href="mailto:info@cattlemen.bc.ca">info@cattlemen.bc.ca</a></p>



**Appendix 1 to Section 2**  
**RDN - 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	93,753	~1.65	154.7	.015	1,406
Turkeys	494	5	2.5	.0375	19
Other Poultry	2,102	~2.5	5.2	.019	40
<b>Total</b>	<b>96,349</b>		<b>162.4</b>		<b>1,465</b>

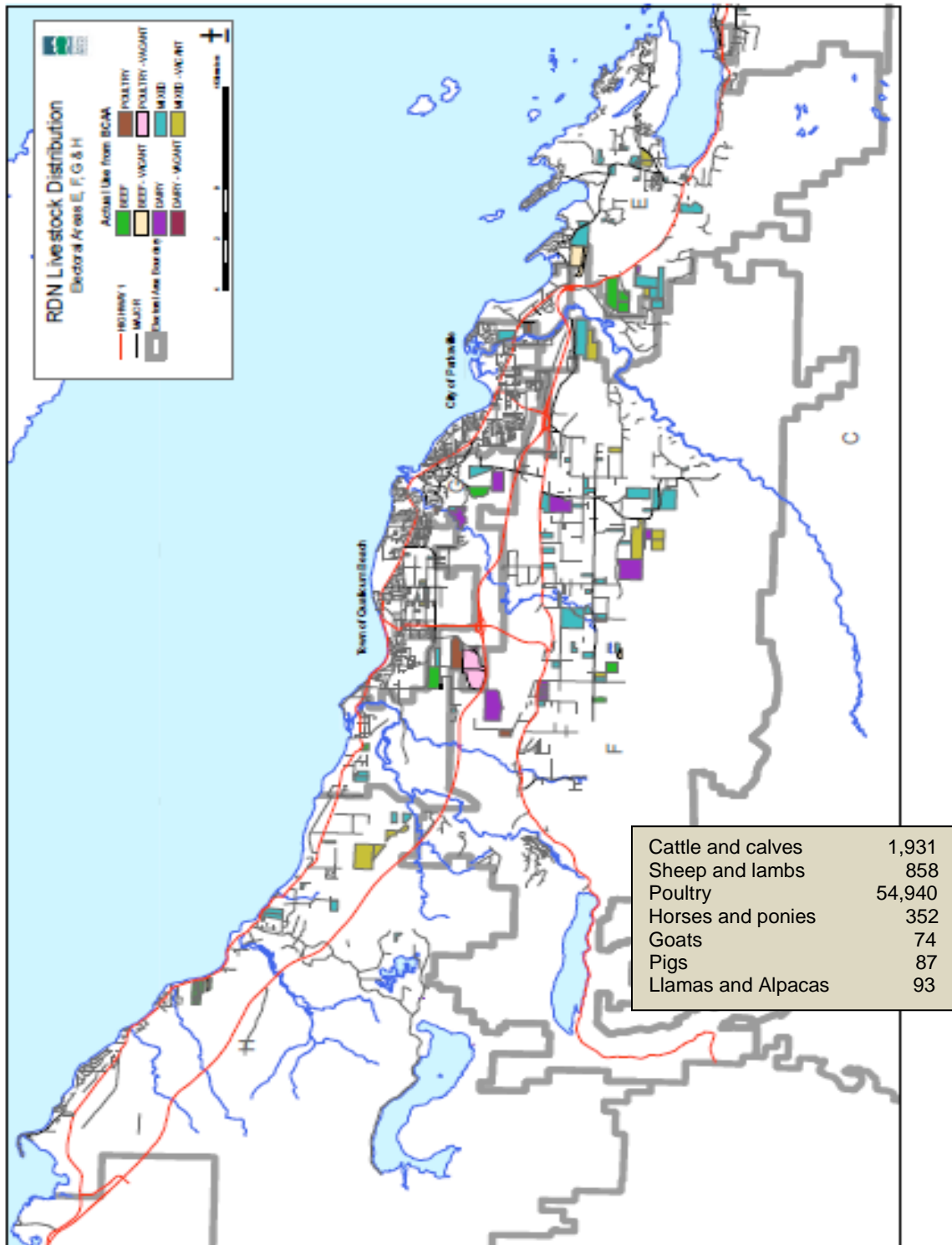
Cows (Dairy)	456	635	289.5	1.5	684
Cows (Beef)	947	635	601.3	1.5	1,420
Bulls >1 year old	95	727	69.0	1.5	142
Steers >1 year old	326	635	207.0	1.5	489
Heifers	528	455	240.2	1.0	528
Calves	974	210	204.5	0.5	487
<b>Total</b>	<b>3,326</b>		<b>1,611.5</b>		<b>3,750</b>

Pigs	267	200	53.4	0.375	<b>100</b>
Sheep and lambs	1,645	80	131.6	0.3	<b>493</b>
Horses and ponies	632	523	330.5	1.5	<b>948</b>
Goats	149	80	11.9	0.3	<b>45</b>
Llamas and Alpacas	402	75	30.1	0.6	<b>241</b>

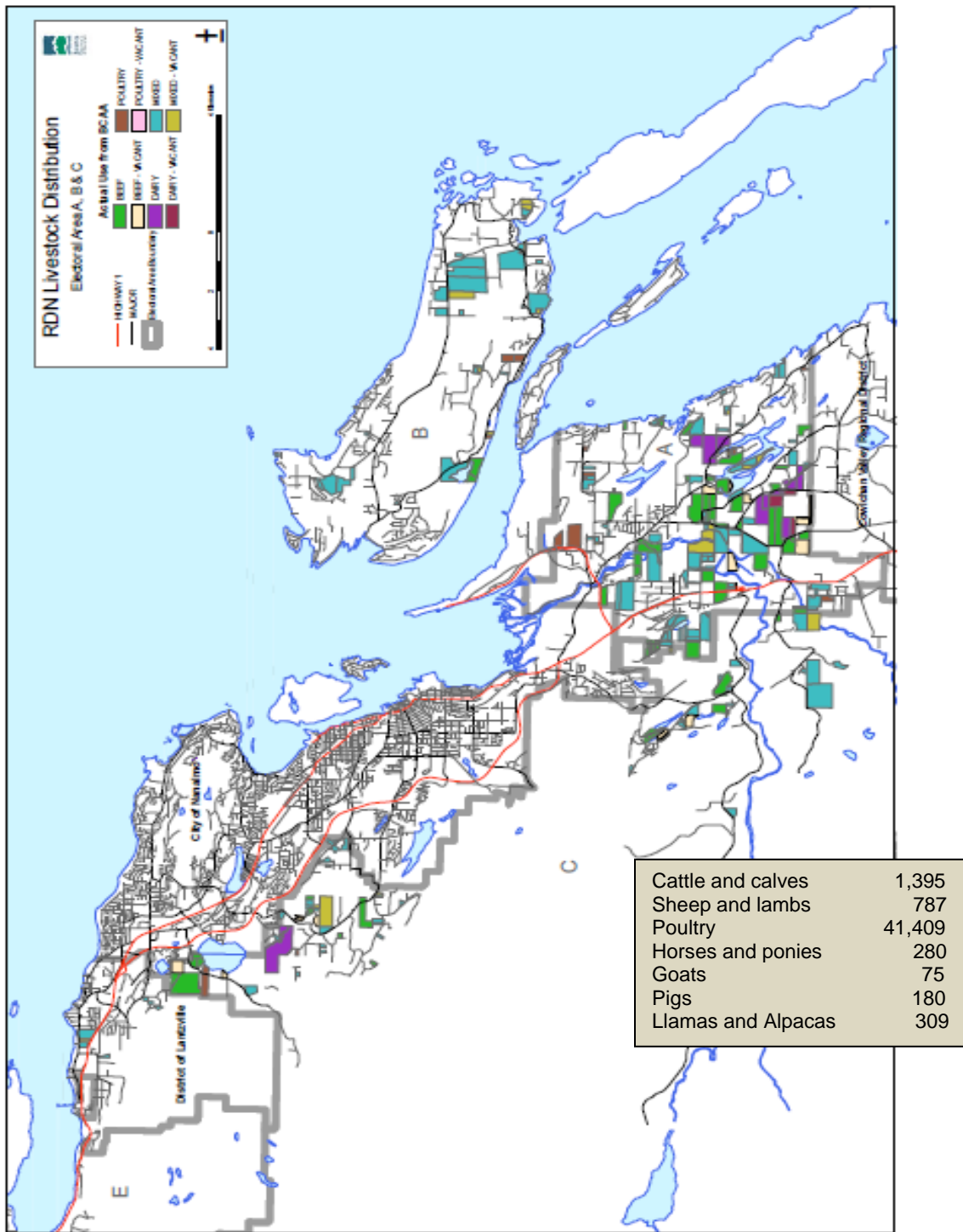
**Notes:**

- Number of head is derived from Statistics Canada Census 2006 – Agriculture Community Profiles.
- 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)*.
- 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.
- 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 – RDN North



Appendix 3 to Section 2  
Livestock Profile – RDN South



**Appendix 4 to Section 2  
Livestock Commodity and Advisory Groups**

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

Additional information on livestock associations and other provincial agriculture organizations is available through the BC Agriculture Resource Guide 2007 at: <http://www.agridigest.com/guide/ResourceGuide.pdf>.

### 3. Concept of Operations

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#### 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 otherwise 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 and/or there is 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, the risk of spread / 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 visits suspected premises to undertake testing and apply any necessary controls.

**Enhanced Response** – Upon confirmation of disease, 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

**3.4 Animal Disease Response**

situation. Both MAL and the *Vancouver Island Health Authority* must also be kept aware of the situation during any mass mortality event, and each will provide appropriate advice and support.

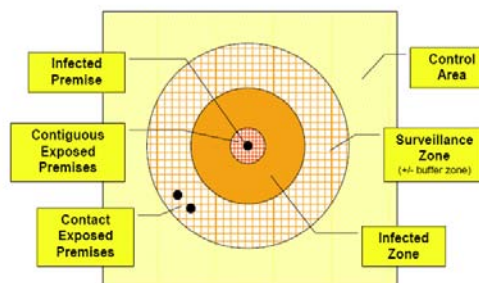
The local government response will depend on whether the animal mortality is part of a larger emergency (e.g., flood or earthquake) for which an emergency response has already been initiated, or the carcass disposal emergency is independent of a broader response. **A critical path showing the steps to be taken in each of these situations is at Appendix 1 to Section 4.**

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 District Veterinarian or District Office Manager.

Each CFIA District Office is responsible to maintain 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.

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 p. 22).

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 event 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 preferred 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

**3.9 Pre-emptive Slaughter of Animals**

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. Once issued, these protocols will guide decisions on applicable transportation issues.

The destruction of animals to support attempts 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 preferable where possible but the animals must be transported alive 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 JECC 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 any carcass disposal operation is required to obtain specific information, permits and ensure that current guidelines and best practices are being applied.

**3.13 First Nations**

First responders are permitted to enter First Nations lands **only if specifically requested by the native bands 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 First Nations entity involved if this is practicable.

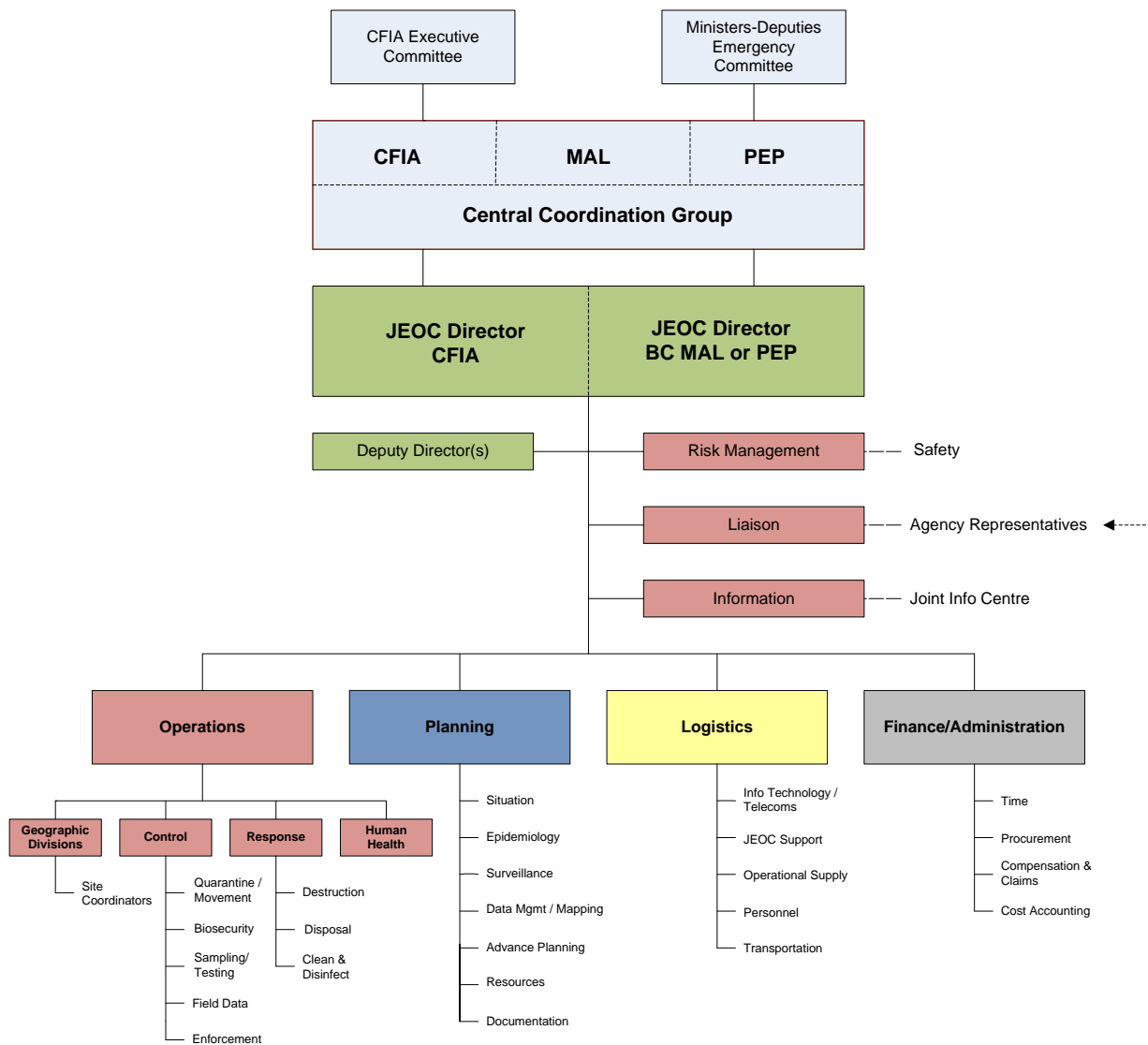
**3.14 Media/Public Information**

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 defused by an articulate, calm and confident spokesperson that 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 fusion 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 and/or spokespersons from the outset, including industry representatives, who cooperate closely with each other. A clear, timely and consistent message is paramount.

All organizations involved must ensure that the overarching requirement to deliver information is not unduly delayed by a perceived need to assemble complete information. The public wants to know the situation and should be briefed accordingly. 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

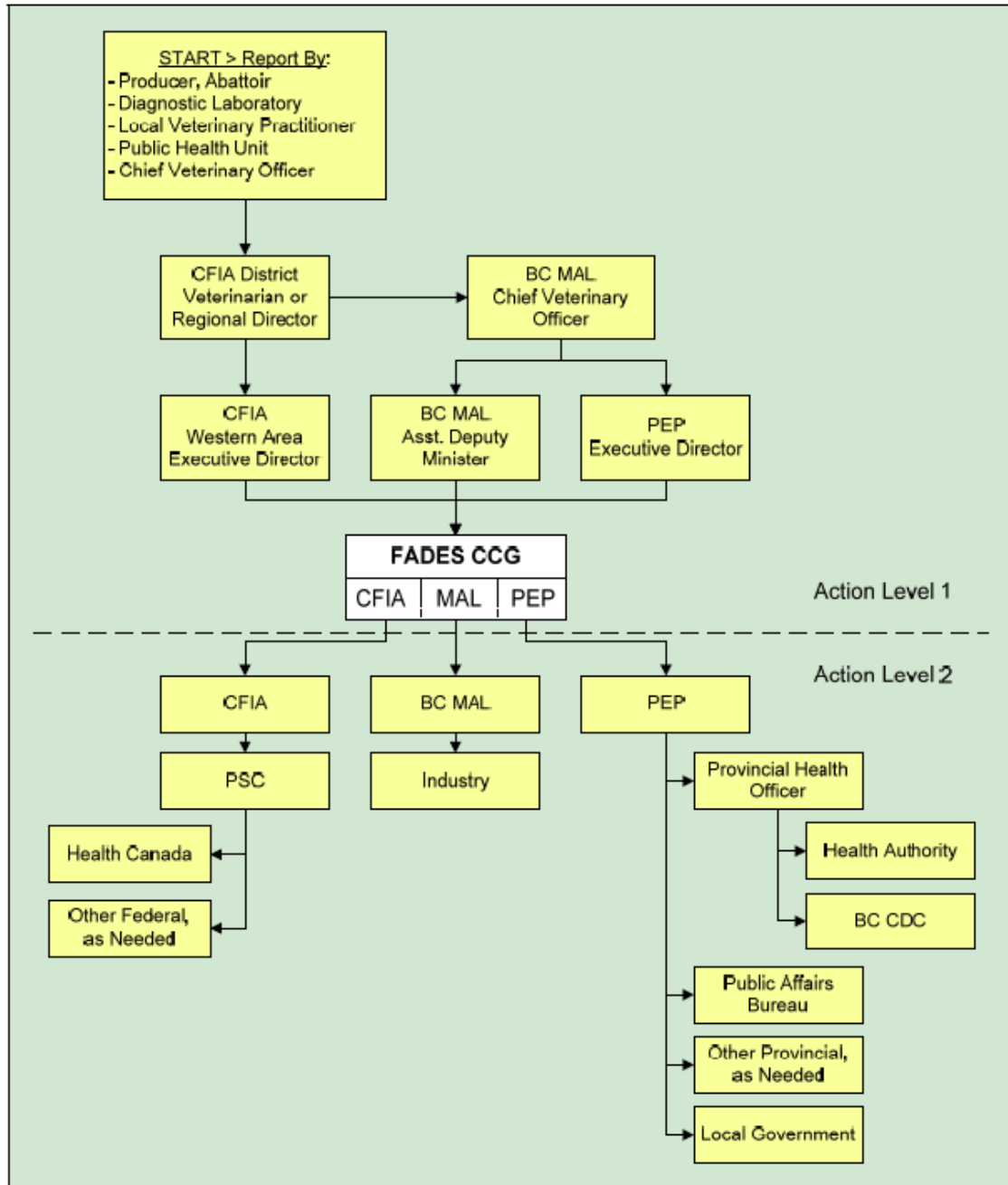


Function Chart for a Fully-Activated Federal-Provincial Joint Emergency Operations Centre (JEOC)  
(Source: FADES Plan 2008)

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 – RDN

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### 4.1 General

Effective disposal operations in the RDN will be those that are planned in advance. Decisions on disposal may have to balance the interests of animal health officials, whose primary goal is to quickly eradicate the disease, with potentially competing concerns about environmental protection and safeguarding public health.

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

A key to success in the RDN 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 RDN 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 utilizing local police or other emergency services, 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 destruction and disposal sites within the local area and assist with logistical support to implement the 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 response and recovery 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**

Timely response to local public concerns and questions, and ensuring the timely passage of information among participating entities is of key importance during a carcass disposal emergency. 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 handle. For a non-disease event, the responsible local jurisdiction will activate its carcass disposal emergency plan and work with

**4.4 Disposal Options: Non-Disease Event**

applicable provincial agencies to respond to the emergency.

For an animal disease event in the RDN, the CFIA District Office in Parksville, supported by the District Veterinarian (Victoria) will provide the first response. The CFIA District 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 responsible local jurisdiction 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.**

The natural events considered most likely to affect the RDN area are identified in Section 2.2, *Risk Profile*. For a non-disease event, the responsibility for selecting the disposal methodology will rest with RDN, 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	<b>On-Farm Composting</b>	<p>Composting is currently practiced by some producers for routine mortality. Bin or windrow type composting is the norm.</p> <p><b>Suitability:</b> Poultry (in-barn when possible), cattle and other larger animals in limited numbers when required equipment is available.</p> <p><b>Note:</b> The end product from composting cattle carcasses from which SRM has not been removed must be disposed of in accordance with SRM regulations.</p>
2	<b>On-Farm Burial</b>	On-farm burial is a suitable option for a limited numbers of carcasses where

			<p>geological and hydrological conditions permit.</p> <p>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.</p> <p><b>Suitability:</b> Cattle and other large animals in limited numbers, sheep, hogs.</p> <p><b>Note:</b> 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.</p>
	<p>3</p>	<p><b>Rendering</b></p>	<p>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.</p> <p><b>West Coast Reduction Ltd. (WCR)</b>          105 North Commercial Drive          Vancouver, British Columbia          V5L 4V7          604-255-9301  <a href="http://www.wcrl.com/index.htm">http://www.wcrl.com/index.htm</a></p> <p><b>Suitability:</b> Cattle, poultry, hogs.</p> <p>A subsidiary WCR plant in Nanaimo, Island Processing Co., does not render animal carcasses on-site, but can assist with the coordination of pick-up and transportation of carcasses on Vancouver Island. Poultry and hog</p>



		<p>carcasses would be shipped to Vancouver and cattle carcasses to Calgary.</p> <p><b>Island Processing Co. (IPC)</b> 250-722-4770</p> <p><b>Note:</b> Dead animals have to be at the gate of the rendering facility within 24-36 hours after death. Coordination of transportation resources is therefore crucial.</p>
4	<b>Incineration</b>	<p>High-temperature incineration is an effective disposal option. However, there are currently no large-scale, fixed-facility incinerators in the RDN. The only incinerator available in BC is in Burnaby, but it has limited capacity.</p> <p>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.</p> <p><b>Suitability:</b> All animals.</p> <p><b>Note:</b> Incineration of cattle carcasses must meet specified critical temperatures in accordance with SRM regulations. CFIA approval is required.</p>
5	<b>Central Composting</b>	<p>Off-farm composting is acceptable if suitable sites are available.</p> <p>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.</p> <p><b>Suitability:</b> Poultry, sheep, hogs.</p>

		<p>limited suitability for cattle and other large animals.</p> <p><b>Note:</b> It is essential that potential sites be identified in advance.</p>
6	<b>Central (Trench) Burial</b>	<p>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 <b>potential sites should be identified in advance.</b></p> <p><b>Suitability:</b> Cattle and other large animals, sheep, hogs.</p>
7	<b>Landfill</b>	<p>There is one landfill in the RDN jurisdictional area with limited approval for carcass disposal. (Regional Landfill - see Appendix 5).</p> <p><b>Suitability:</b> Animals as approved by CFIA and within RDN policy for disposal.</p> <p><b>Note:</b> CFIA approval is required for all animal carcass disposal in landfills, with an additional special permit for SRM.</p>
8	<b>Air-Curtain Burning</b>	<p>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.</p> <p><b>Suitability:</b> Poultry, sheep, hogs. Limited cattle carcasses.</p> <p><b>Note:</b> No air curtain burning of SRM is allowed due to the risk presented by fly ash.</p>

Guidelines for the selection of potential disposal sites within the RDN 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:

<b>MINISTRY OF AGRICULTURE AND LANDS</b>
<b>Resource Management Branch Waste Management Engineer 604-556-3001</b>

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:

<b>CANADIAN FOOD INSPECTION AGENCY</b>
<b>Parksville District Office 250-248-4772 District Veterinarian (Victoria) 250-363-3097</b>

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 on Vancouver Island would have to be done in vehicles suitable for the transportation of hazardous waste, and the risks involved in transporting infected carcasses off the Island would have to be carefully considered.

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

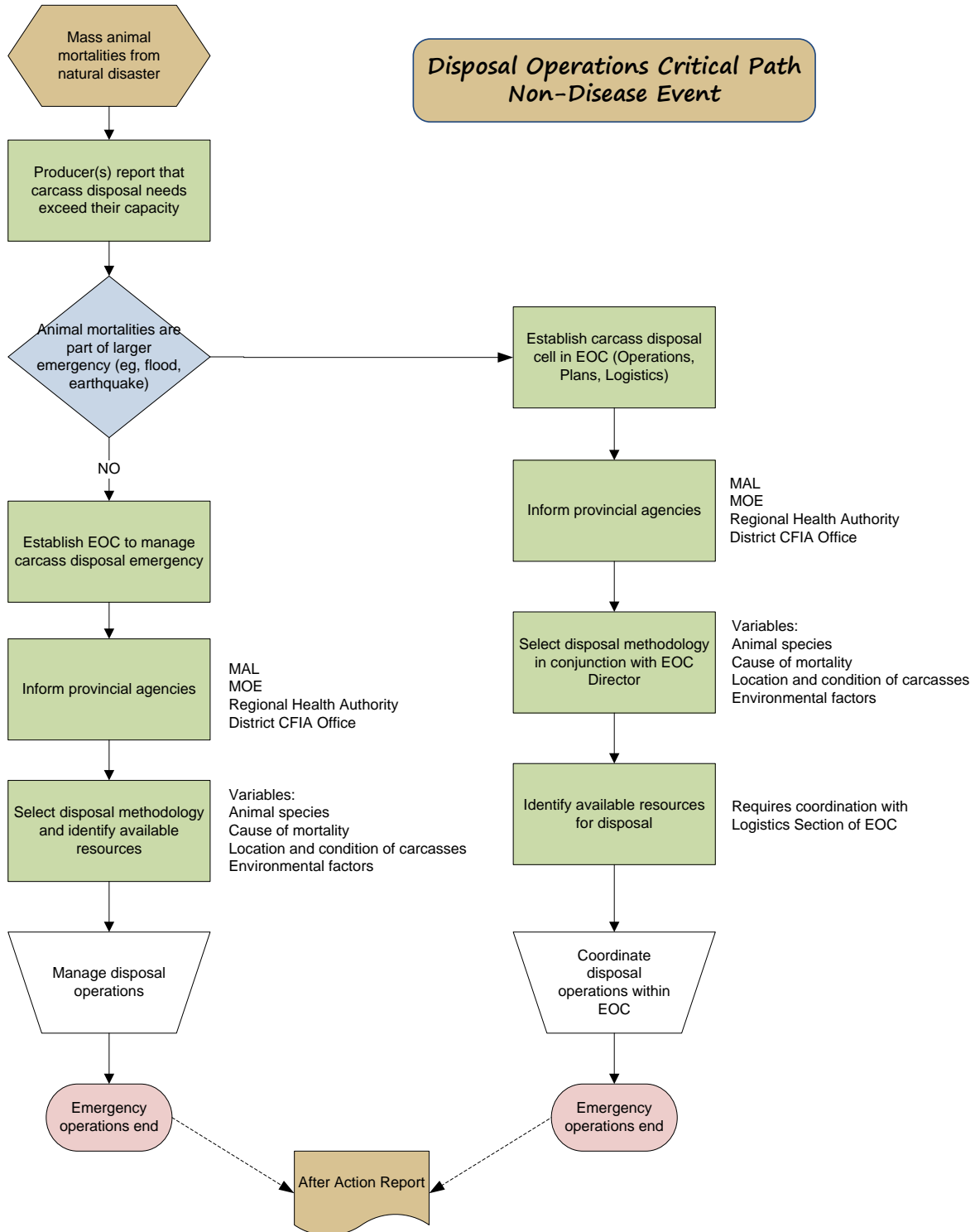
**4.6 Threats to Human Health**

The RDN must maintain close communication with VIHA and local medical facilities throughout carcass disposal operations, and ensure that potential threats to human health and mitigating strategies are identified and communicated.

**VANCOUVER ISLAND HEALTH AUTHORITY****Medical Health Officer/Public Health****250-519-7065****1-800-204-6166 (after hours)**

MAL disposal protocols are generated with input from public health officials and include requirements for protective clothing and other health and safety restrictions.

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



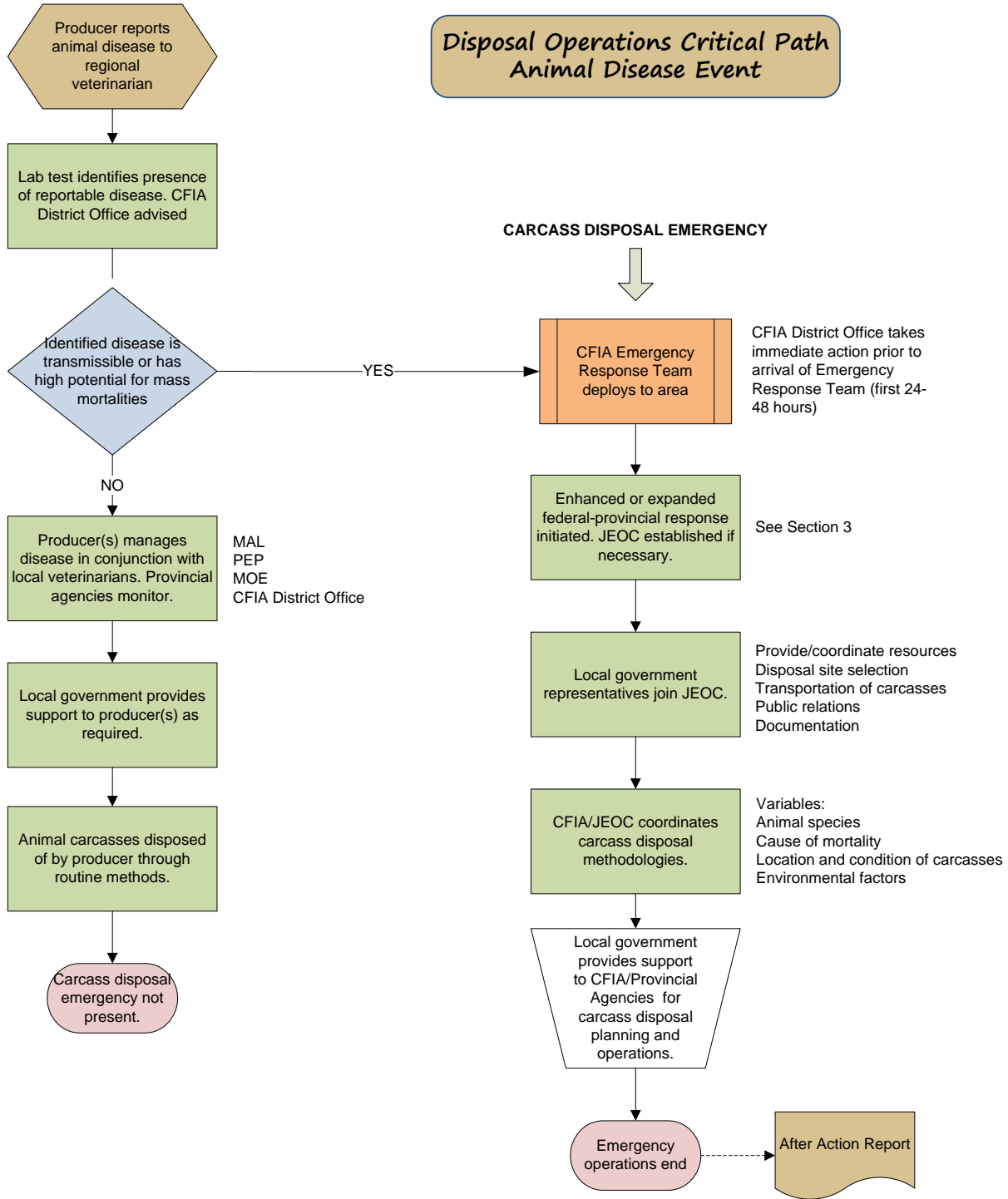


**Appendix 2 to Section 4  
Master Checklist – Non-Disease Event**

<input checked="" type="checkbox"/>	<b>Required Action</b>
<input type="checkbox"/>	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.
<input type="checkbox"/>	If independent from a larger emergency (e.g., localized fire, ventilation failure, etc) activate EOC for carcass disposal operations.
<input type="checkbox"/>	Identify affected farms and contact producers. <sup>Note 1</sup>
<input type="checkbox"/>	Determine locations and estimated numbers of carcasses.
<input type="checkbox"/>	Notify MAL and MOE.
<input type="checkbox"/>	Notify PEP and obtain PEP Task Number if applicable.
<input type="checkbox"/>	Identify and nominate industry representative(s) to EOC.
<input type="checkbox"/>	In consultation with producers, determine if off-farm disposal is likely to be required. Review transportation requirements and availability if applicable.
<input type="checkbox"/>	Determine if animal carcasses may represent a threat to human health and contact Regional Health Authority if applicable.
<input type="checkbox"/>	Develop and implement public relations/communications strategy and plan.
<input type="checkbox"/>	Develop disposal plan in close consultation with MAL and PEP.
<input type="checkbox"/>	Review potential disposal sites and, in conjunction with MAL and MOE arrange geotechnical or other assessments required.
<input type="checkbox"/>	Review resource lists and identify required equipment for carcass disposal.
<input type="checkbox"/>	Brief affected producers on disposal plans and adjust as necessary.
<input type="checkbox"/>	Finalize plan and implement disposal operations.
<input type="checkbox"/>	Brief key stakeholders and keep public advised through local media, town hall meetings, etc.
<input type="checkbox"/>	Ensure appropriate documentation on carcass disposal is completed and retained.
<input type="checkbox"/>	Review compensation guidelines (anticipate and have solutions for local questions on compensation).
<input type="checkbox"/>	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

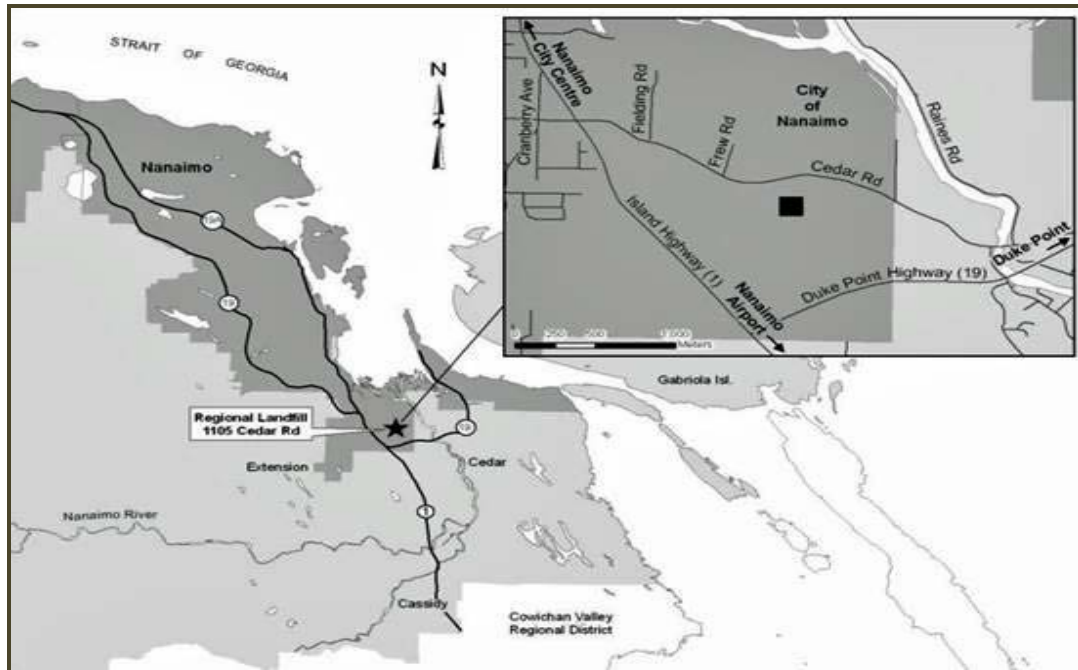


**Appendix 4 to Section 4  
Master Checklist – Animal Disease Event**

<input checked="" type="checkbox"/>	<b>Required Action</b>
<input type="checkbox"/>	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.
<input type="checkbox"/>	On confirmation of carcass disposal emergency, liaise with CFIA/MAL/PEP and monitor federal/provincial planning.
<input type="checkbox"/>	Initiate development of local public relations/communications plan. <sup>Note 1</sup>
<input type="checkbox"/>	Provide support to CFIA Emergency Response Team (if deployed).
<input type="checkbox"/>	Obtain PEP Task Number (if applicable).
<input type="checkbox"/>	Determine from CFIA/PEP if FADES Plan will be implemented and, if so, nominate local government and industry representatives to join JEOC.
<input type="checkbox"/>	Liaise with MOE with respect to local restrictions on carcass disposal.
<input type="checkbox"/>	Liaise with JEOC to ensure that local producers and other stakeholders have been briefed and are kept advised on carcass disposal planning and operations.
<input type="checkbox"/>	Review resource lists and develop logistics/transportation plans in conjunction with JEOC.
<input type="checkbox"/>	Assist JEOC with preparation of disposal plans, providing advice on local conditions.
<input type="checkbox"/>	Review potential disposal sites in local area and assist JEOC in arranging geotechnical and other surveys/assessments as required.
<input type="checkbox"/>	Ensure local first responders are briefed on carcass disposal requirements and are available to assist as required.
<input type="checkbox"/>	Determine from CFIA any threats to human health from animal disease and liaise with Regional Health Authority on public health issues.
<input type="checkbox"/>	Participate as required in JEOC Action Planning Meetings to ensure that local interests are considered.
<input type="checkbox"/>	Keep local stakeholders and public advised of carcass disposal plans and activities through local media, town hall meetings and/or other means.
<input type="checkbox"/>	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  
RDN – Regional Landfill**



**RDN Regional Landfill**

1105 Cedar Road, Nanaimo, BC  
250-722-2044

The Regional Landfill is located about five kilometres south of downtown Nanaimo. The landfill site is approximately 37 hectares in size. The 13.7-hectare operational area of the site has a high-density plastic liner and has been receiving municipal solid waste from the Regional District of Nanaimo since 1991. An 8.8-hectare unlined portion of the site was closed in 1996.

The Regional Landfill operates under an operational certificate issued by the BC Ministry of Environment. Landfill gas and leachate are collected from both the lined and unlined areas of the landfill site. Leachate is directed into the sanitary sewer system for treatment at the Greater Nanaimo Pollution Control Centre. The landfill gas collection system directs the gas to an on-site flare station where the methane is burned to reduce greenhouse gas emissions and improve air quality.

A limited number of animal carcasses may be disposed of at the Landfill under the Environmental Management Act, however CFIA approval would be required for the disposal of a large number of carcasses in an emergency. The Landfill does not have a CFIA permit for the processing of SRM and is 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  
RDN – 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
<p>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.</p> <p>Sites should be at least 400m from provincial highways, 100m from provincial roads or railroads and 300m from private residences.</p> <p>Locations above an existing aquifer are excluded due to the potential for contamination.</p> <p>Access to the site must be suitable for heavy equipment and the delivery of livestock carcasses in transporter trucks.</p> <p>Sites must have soils with good stability capable of withstanding the weight of equipment used to construct and fill the pits.</p>	<p>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.</p> <p>Sites should be on high ground with good drainage where pooling of water does not occur.</p> <p>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.</p> <p>Access to the site must be suitable for the delivery of livestock carcasses in transporter trucks.</p> <p>The site should be shielded from public view and secure from animal predators.</p>

Potential sites should be identified in advance of a carcass disposal emergency. If this is not feasible then sites must be identified, in conjunction with the RDN 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 – RDN

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### 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 agent 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 RDN has limited availability of heavy equipment and 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 provides a list of equipment available in the RDN. Appendix 4 lists commercial disposal resources and equipment suppliers.

**5.5 Resource Gap Analysis**

Map locations and a list of provincially licensed slaughter facilities/ meat plants in BC is at Appendix 5.

The RDN 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 RDN 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 only potential disposal site in the RDN is the Regional Landfill, but it has limited capacity is 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, the necessary supplies and equipment would have to be sourced from outside the district.
- e) **Personal Protective Clothing.** The RDN 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 RDN 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
<b>Transportation:</b>	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).
<b>Heavy Equipment:</b>	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).
<b>Light Equipment:</b>	Motorized pressure spray units (cleaning, washing and disinfection of vehicles and containers) Generators, various capacities. Pumps. Compressors. Fans (blowers)
<b>Safety and Security:</b>	Warning signs. Portable disposal site lighting. Road pylons. Site marking tape. Identification badges
<b>Personal Protection:</b>	Protective clothing including footwear. Coveralls (for temporary visitors to disposal sites). Masks or respirators. Decontamination equipment and chemicals. Medications such as anti-virals (controlled by medical staff). Portable toilets. Temporary shower and changing facilities. Clothes washing facilities. Walk-through footwear disinfectant facility.
<b>Miscellaneous:</b>	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.

	<p>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.</p>
<p><b>Documentation:</b></p>	<p>Office equipment and supplies.          Forms and templates.          Printing facilities.</p>

**Appendix 2 to Section 5  
Specialized Disposal Equipment List**

This list provides guidance for specific disposal methodologies. It is not intended to provide 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
<b>Burial</b>	<p>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.</p> <p>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.</p>
<b>Burning</b>	<p>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.</p>
<b>Rendering</b>	<p>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.</p>
<b>Composting</b>	<p>Midsized front-end or skid-steer loader. Hand tools. Composting thermometers. Carbon source (litter, sawdust, etc).</p>



	<p>Moisture meter.          Water hose and supply.          Warning signs.          Poly sheeting and tarpaulins with anchors.          Cleaning and disinfectant supplies.</p>
<b>Incineration</b>	<p>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.</p>
<b>Fermentation</b>	<p>Containers:</p> <ul style="list-style-type: none"> <li>– Garbage cans (2 per unit) for less than six bovine units.</li> <li>– Large metal bins from renderer or large garbage bins for 6-60 bovine units.</li> <li>– Above-ground horizontal silo or trench silo or a liquid manure tank for more than 100 bovine units.</li> </ul> <p>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.</p>

**Appendix 3 to Section 5  
RDN Equipment List**

The RDN holds only light fleet vehicles which are not suited to carcass disposal tasks.

Appropriate equipment is available through the *Disposal Resources and Equipment Suppliers* listed at Appendix 4.

**Appendix 4 to Section 5  
Disposal Resources and Equipment Suppliers**

**HEAVY EQUIPMENT**

<b>Island Equipment Owners' Association (IEOA)</b>
<p>Heavy equipment owners on Vancouver Island have formed an association with established standards of practice and rates. Many of the types of heavy equipment required in a carcass disposal emergency will be available through association member companies. Information on the IEOA, equipment availability and current rates are available at:</p> <p align="center"><a href="http://www.ieoa.ca">www.ieoa.ca</a></p> <p>The Association also publishes a handbook which contains member lists, equipment rates and other information. Telephone 250-382-4362 to obtain a handbook or obtain a quote.</p>

**GEO-TECHNICAL AND ENVIRONMENTAL SERVICES**

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

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

**COMPOSTING SERVICES AND EQUIPMENT**

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

**AIR-CURTAIN BURNERS**

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

**RENDERING PLANTS**

<p><b>West Coast Reduction Ltd. (WCR)</b>          105 North Commercial Drive          Vancouver, British Columbia V5L 4V7          604-255-9301  <a href="http://www.wcrl.com/index.htm">http://www.wcrl.com/index.htm</a></p>	<p>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.</p>
<p><b>Island Processing Co. (IPC)</b>          900 Maughan Road          Nanaimo, BC V9X 1H5          250-722-4770  <a href="http://www.wcrl.com/aboutus/facilities.htm">http://www.wcrl.com/aboutus/facilities.htm</a></p>	<p>A division of West Coast Reduction Ltd. Does not render animal products but can provide advice and assist with coordinating the transport of carcasses to Vancouver/Calgary for disposal.</p>

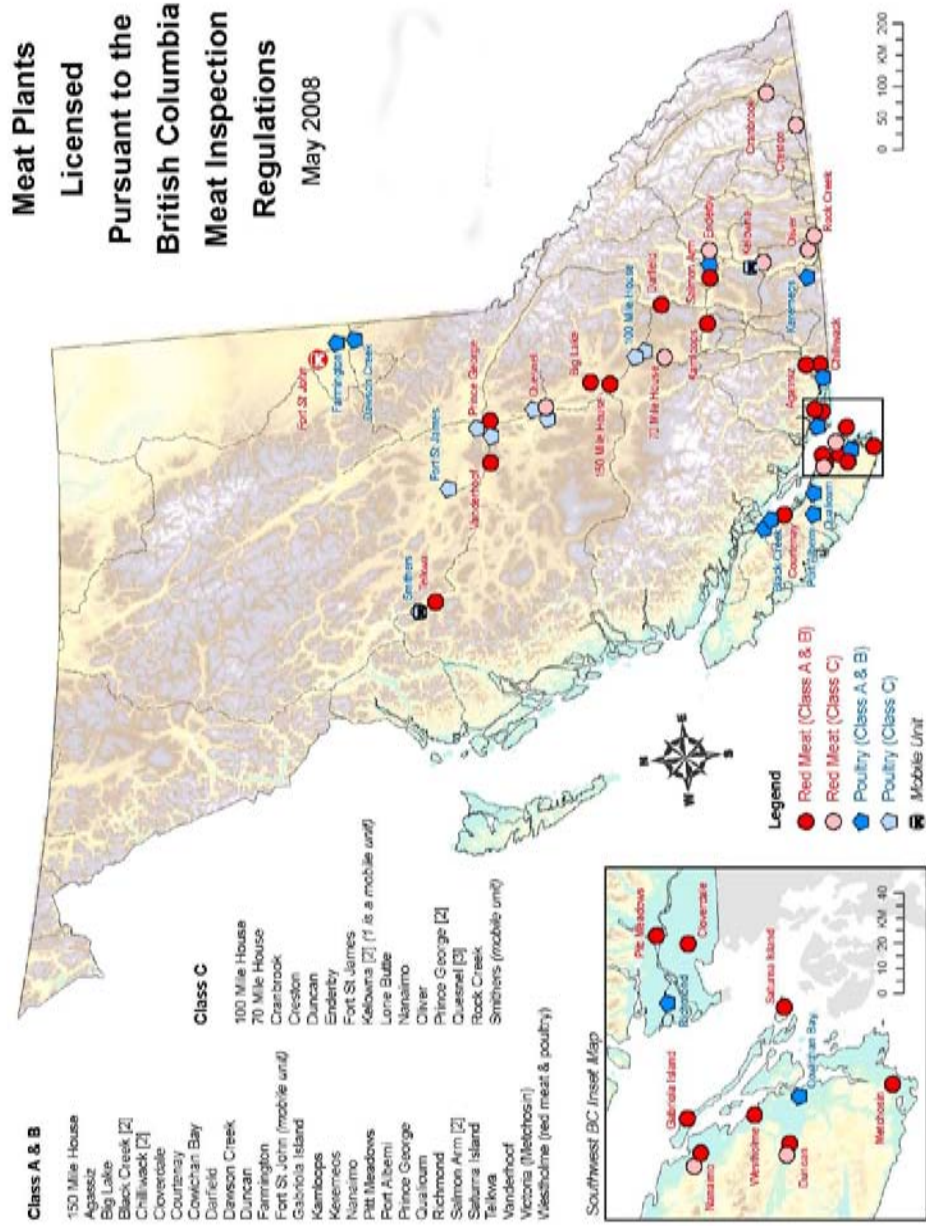
**HAZARDOUS WASTE TRANSPORT AND DISPOSAL**

<p>BC Environmental Industry Association (BCEIA)          604-683-2751  <a href="http://www.hazwastebc.com/index.html">http://www.hazwastebc.com/index.html</a></p>	<p>A current list of hazardous waste transporters in BC is available from BCEIA.  <a href="http://www.hazwastebc.com/Hazardous_Waste_Transporters.html">http://www.hazwastebc.com/Hazardous_Waste_Transporters.html</a></p>
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**LIVESTOCK HEALTH POLICY AND SERVICES**

<p>Canadian Food Inspection Agency          District Veterinarian          Room 103, 4475 Viewmont Avenue          Victoria, BC V8Z 6L8          250-363-3097  <a href="http://www.inspection.gc.ca/english/directory/offbure.shtml">http://www.inspection.gc.ca/english/directory/offbure.shtml</a></p>	<p>Dr Sujinder Bhachoo, DVM, MVSC           CFIA District Veterinarians will provide information on reportable/transmissible animal diseases to veterinary practitioners, livestock owners and poultry producers.</p>
<p>BC Ministry of Agriculture and Lands          Animal Health Centre          1767 Angus Campbell Road          Abbotsford, BC V3G 2M3          1-800-661-9903          604-556-3003  <a href="http://www.al.gov.bc.ca/ahc/index.htm">http://www.al.gov.bc.ca/ahc/index.htm</a></p>	<p>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.</p>
<p>Centre for Coastal Health          900 Fifth Street          Nanaimo, BC V9R 5S5           (Building 305, Room 406)  <a href="http://centreforcoastalhealth.ca/">http://centreforcoastalhealth.ca/</a></p>	<p>The Centre for Coastal Health (CCH) is an independent, non-profit organization whose mission is to identify and understand the interactions of human, animal and environmental health. It undertakes problem-oriented research, risk assessments, research planning, policy development, field investigations and education. Services of the CCH may be available on a contract basis.</p>

Appendix 5 to Section 5  
BC Slaughterhouses and Meat Plants





**PROVINCIALY LICENSED MEAT PLANTS  
PURSUANT TO THE BC MEAT INSPECTION REGULATION  
As at May 30, 2008**

<p><b>Rodear Meats Ltd</b> (Red Meat) 3736 Beaver Valley Rd, Box 15 Big Lake, BC V0L 1G0 250-243-2340</p>	<p><b>Farmcrest Foods Ltd</b> (Poultry) 1880-30th Street SW Salmon Arm, BC V1E 4M1 250-832-0036</p>
<p><b>Riverside Meats Ltd</b> (Red Meat) 2945 Haines Road Salmon Arm, BC V1E 4M1 250-832-0012</p>	<p><b>Rainer Custom Cutting</b> (Red Meat) 7493 Darlington Creek Road General Delivery, Darfield, BC V0E 1R0 250-672-9407</p>
<p><b>Van Diemen Turkey Farm Ltd.</b> (Poultry) 3068 10th Ave (RR#1) Keremeos, BC V0X 1N0 250-499-5890</p>	<p><b>Spokin Lake Meats</b> (Red Meat) 4030 Spokin Lake Road Box 172 150 Mile House, BC V0K 2G0 250-296-4355</p>
<p><b>Kam Lake View Meats</b> (Red Meat) 6453 Buckhorn Road Lot 20, Section 19 Kamloops, BC V1S 2A1 250-828-1015</p>	

**Transitional “Class C” Licenses Issued**

<p><b>Adrian Baiton Abattoir</b> (Red Meat) 3790 Highway 3, Box 93 Rock Creek, BC V0H 1Y0 250-446-2259</p>	<p><b>New Cal Rabbit Farm</b> (Poultry) 6691 Hwy 97 100 Mile House, BC V0K 2E2 250-395-3336</p>
<p><b>Berkana Berry Farm</b> (Poultry) 6730 Fawn Creek Rd, RR#1 Lone Butte, BC V0K 1X0 250-395-7785</p>	<p><b>North Okanagan Game Meats</b> (Red Meat) 40 Matthews Road Enderby, BC V0E 1V4 250-838-7980</p>
<p><b>Ceres Circle Farm</b> (Red Meat) 1 – 3652 Spiers Road Kelowna, BC V1W 4A9 250-861-7005</p>	<p><b>Okanagan Poultry Processing</b> (Poultry) 2 – 1077 Clement Avenue Kelowna, BC V1Y 7E3 250-448-8400</p>

<p><b>Gold Creek Custom Meats</b>          (Red Meat)          3256 Gold Creek Road          Cranbrook, BC V1C 6Z4          250-426-7770</p>	<p><b>Tarzwel Farms</b>          (Red Meat)          524 Williams Road          Creston, BC V0B 1G8          250-428-4316</p>
<p><b>Johnston Meats</b>          (Red Meat)          Box 572          Oliver, BC V0H 1T0          250-498-2903</p>	<p><b>The Quesnel Abattoir</b>          (Red Meat)          2320 West Fraser Road          Quesnel, BC V2J 6K1          250-992-6788</p>
<p><b>Maple Valley Farms</b>          (Poultry)          4157 Drummond Rd          Quesnel, BC V2J 6W5          250-992-8316</p>	<p><b>XH Buffalo Ranch</b>          (Red Meat)          938 South Green Lake Road, RR1          70 Mile House, BC V0K 2K0          250-456-2319</p>

*(Source: BC Centre for Disease Control)*

## 6. Finance and Administration

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### 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](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/FinancialAssistanceGuide.pdf](http://www.pep.gov.bc.ca/dfa_claims/FinancialAssistanceGuide.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](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

**6.7 Requirement for Record Keeping**

provided at Appendix 1 to this section.

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: <sup>Note 1</sup>

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 September 16, 2008. 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

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### 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) <sup>(1)</sup>	Species at Risk
	Rare Unlikely Possible Likely Certain	Very Low Low Medium High Very High	Yes/No If zoonotic: (Insignificant) (Low) (Moderate) (High)	
Anthrax ( <i>Bacillus anthracis</i> )	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 ( <i>Babesia bovis</i> )	Possible	Medium	Yes (Moderate)	Cattle
Classical Swine Fever or Hog Cholera ( <i>Pestivirus</i> )	Possible	High	No	Swine
Epizootic haemorrhagic disease (Orbivirus)	Likely	High	No	Multiple
Foot and Mouth Disease ( <i>Picornavirus</i> )	Possible	High	No	Multiple
Fowl Cholera ( <i>Pasteurella multocida</i> )	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) <sup>(2)</sup>	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
<b>Market</b>	<p>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.</p>
<b>Rendering</b>	<p>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).</p> <p>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.</p> <p>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.</p> <p>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.</p>
<b>Composting</b>	<p>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.</p> <p>Composting methods include bin, static windrow, and in-vessel (AgBag). 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</p>



with periodic turning (aeration). Windrow composting also utilizes layering of carcasses and bulking agent in long windrows 4.5 m wide, 2.1 m high with 2.4 m windrow spacing to allow machine access for turning. A 90 m windrow would hold 55-60 cow carcasses. In-vessel composting utilizes plastic pods (AgBags) 3 m 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 325 m<sup>2</sup> 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 1 m 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.

<p><b>Incineration</b></p>	<p>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.</p> <p>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.</p>
<p><b>Burning</b></p>	<p>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.</p> <p>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.</p> <p>Air curtain burning sites require 2.5 hectares per installation and should be located a minimum of 100 m from neighbouring residences and 500 m 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.</p> <p>Residues left over from burning must be buried, composted or transported to a landfill. However, open burning of significant</p>

	<p>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.</p>
<p><b>Landfill</b></p>	<p>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.</p> <p>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.</p> <p>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.</p>
<p><b>Burial</b></p>	<p>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.</p> <p>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.</p> <p>Maximum loading rate for non-emergency on-site carcass burial is 700 kg 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 MOH. 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.</p> <p>Environmental risks associated with burial include:</p> <ul style="list-style-type: none"> <li>- holding (burial) sites that result in surface and/or soil pollution and/or air pollution;</li> </ul>

- 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)<sub>2</sub>] 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

	<ul style="list-style-type: none"> <li>• Provincial roads – 100m</li> <li>• Railroads – 100m</li> <li>• Residences – 300m</li> <li>• Property line – 50m</li> <li>• Unstable areas, steep banks, cliffs, ravines – 100m</li> <li>• Hotels, restaurants, food processing facilities, schools churches and public parks – 300m</li> <li>• National parks, cemeteries, flood prone areas, rock outcrops–excluded</li> <li>• Underground and overhead utilities – avoid</li> <li>• Difficult sites for excavation such as excessive trees, rocks, and other physical obstructions – avoid</li> <li>• Steeply sloping land (greater than 5%) – avoid</li> <li>• Crown land – preferred</li> <li>• Reasonable truck access – required</li> </ul> <p><i>Geotechnical / Geological Criteria and Aquifer Protection</i></p> <ul style="list-style-type: none"> <li>• Minimum 5 m of low permeability soil below the base of the proposed trench with a hydraulic conductivity of <math>1 \times 10^{-6}</math> cm/sec or less which equates to a total depth below ground surface of 10 m for a 5 m deep burial pit.</li> <li>• 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.</li> <li>• Any locations above an existing aquifer are excluded based on consideration of consequence of contamination.</li> <li>• Potential sites should be investigated by a professional geotechnical engineer to confirm suitability based on approved geotechnical and geological criteria.</li> </ul>
<p><b>Other Potential Methodologies</b></p>	<p><u>Fermentation</u></p> <p>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.</p> <p>Carcasses are ground to fine particles, mixed with a fermentable carbohydrate source and culture inoculant, 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 <i>Lactobacillus acidophilus</i>.</p> <p>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 <i>L. acidophilus</i> 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</p>

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 RDN 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	<b>Orientation</b> (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	<b>Tabletop</b> (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	<b>Drill</b> (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	<b>Functional</b> (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	<b>Full-Scale</b> (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.