NZAAA CODE OF PRACTICE FOR THE AERIAL APPLICATION OF VERTEBRATE TOXIC AGENTS

Code of Practice for the Aerial Application of Vertebrate Toxic Agents

Introduction

This Code of Practice provides guidance on the safe and responsible aerial application of vertebrate toxic agents (VTAs). The Code forms part of the NZ Agricultural Aviation's Accreditation programme. To hold NZAAA Accreditation that includes the aerial application of VTAs, an operator will have satisfied an independent audit against the requirements of this Code.

All VTAs are hazardous substances under the HSNO Act 1996 and pursuant Regulations. Compliance with this Code will ensure compliance with the requirements of the HSNO Act and Regulations.

An important part of any aerial application of VTAs is the identification of responsibilities of all those involved in the process. For that reason no aerial application of VTAs shall be carried out unless a contract defining the responsibilities for the operation has been prepared. In many cases, for example any Department of Conservation work there will already be a contract. In other situations a contract may need to be written. While the aerial operator will normally only be responsible for the application of VTAs, it is important to be clear about the specific tasks. For those tasks not being carried out by the aerial operator, for example notification, the aerial operator should confirm that such tasks will be carried out.

Note: This Code forms part of NZAAA Accreditation, which is an independently audited QA programme covering agrichemical application, fertiliser application and VTA application as well as fuel storage and handling, training and health and safety. Full details are available on the NZAAA web site www.nzaaa.co.nz or contact:

Referenced Documents

1. New Zealand Standards

NZS 8409:2004 Management of Agrichemicals
Land Transport Rule Dangerous Goods 2005 Rule 45001/1

2. Gazette notices

Hazardous Substances (Vertebrate Toxic Agents) Transfer Notice 2004 (Supplement to NZ Gazette No. 141)
Hazardous Substances (Vertebrate Toxic Agents) (Amendment) Transfer Notice 2005 (NZ Gazette April 2005 No. 73)
Hazardous Substances (Sodium Fluoroacetate) Transfer Notice 2005, no. 92

3. NZ Legislation

Agricultural Compounds and Veterinary Medicines Act 1997
Civil Aviation Rules (Civil Aviation Act 1990)
Hazardous Substances and New Organisms Act 1996
Hazardous Substances and New Organisms (various) Regulations 2001 and amendments
Health and Safety in Employment Act 1992
Land Transport Rule 45001/1
Resource Management Act 1991

4. Other documents

Guidelines for Aerial 1080 Operations – Animal Health Board March 2005
Department of Conservation Standard Operating Procedures
Guidelines for the Safe Use of Sodium Fluoroacetate (1080): OSH Dept of Labour, 2002
Aerial and Hand Broadcast Application of Pestoff® Rodent Bait 20R for the intended Eradication of Rodents from specified areas of New Zealand.
New Zealand Food Safety Authority, Wellington September 2005
Regional Council Resource management plans and rules as applicable

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Code of Practice for the Aerial Application of Vertebrate Toxic Agents

1. Scope

This Code sets out the requirements for the safe responsible and effective aerial application of vertebrate toxic agents. A risk management approach is used for the following parts of the substance lifecycle:

a) Transport
b) Storage
c) Use

1.1 Substances covered

The Code applies to the aerial application of:

a) Pellets containing 0.4 – 0.8 g/kg sodium fluoroacetate (1080)
b) Pellets containing 1.5 – 2.0 g/kg sodium fluoroacetate (1080)
c) Soluble concentrate containing 200 g/litre sodium fluoroacetate (when mixed with food bait)
d) Bait containing 0.02 g/kg brodifacoum
e) Soluble concentrate containing 34 g/litre pindone as the sodium salt
f) Pindone pellets 0.25 – 0.5 g/kg pindone

1.2 Target audience

The Code is intended for all aerial operators who apply vertebrate toxic agents (VTAs). The responsibilities of an aerial operator depend on the hazards of the substance and the part of life cycle concerned. Aerial application of VTA's will normally be carried out on contract, and the contractor will also have regulatory compliance responsibilities. In some cases there may a shared or dual responsibility, in which case the aerial operator shall assume the full responsibility.

1.3 Interpretation

Compliance

For the purposes of this Code, the word "shall" refers to practices that are mandatory for compliance with the Code. The word "should" refers to practices that are advised or recommended.

Definitions

A list of definitions for terms used in the Code is given below

Term	Definition
Aerial Operator	The organization that actually carries out the aerial application of VTA's
Controlled pesticide	A pesticide specified in Part A of the 7th schedule to the HSNO Act 1996 – for this Code it includes 1080

Controlled substances licence (CSL)	Anyone who is in possession of a licensed substance is required to have a controlled substance license. It is similar to a firearms licence, in that the holder of a CSL is considered a fit and proper person to be in possession of the substance. A CSL can only be obtained from a Test Certifier who is also approved to issue an Approved Handler Certificate for the required substance.
Contract	The formal (written) statement of tasks and responsibilities drawn up between the contractor and the aerial operator
Contractor	The organization or person that contracts the aerial operator to apply vertebrate toxic agents. The contractor is the client of the aerial operator.
DGD	Dangerous Goods declaration
Exclusion Zone	An area or areas defined within the treatment area where no VTA application is permitted
Operations manager	The person delegated by the contractor to supervise the field operations for application of VTAs
Person in Charge	The person who is in control of the place where hazardous substances are present. They could be the owner, lessee, sub-lessee or occupier of the place, location or depot. In effect it is the person who is in control or possession of the relevant part of the site.
Priority Identifier	The information that must be available within two seconds to any person handling the substance, primarily indicating the type of hazard that exists. A pictogram is a priority identifier
Treatment area	The area defined for the application of VTAs
VTA	Vertebrate toxic agent. Under previous legislation poison baits such as 1080 were known as vertebrate poisons. Under new legislation vertebrate poisons are both hazardous substances (HSNO Act) and vertebrate toxic agents (ACVM Act)

2. Risk Management

Risk management includes risks to human health and safety and the environment (Hazardous Substances and New Organisms (HSNO) Act, Health and Safety in Employment (H&SE) Act), risks to trade in primary produce, animal welfare and agricultural security (Agricultural Compounds and Veterinary Medicines (ACVM) Act). Under the Resource Management Act (RMA) there is a duty to avoid, remedy or mitigate adverse effects on the environment associated with the discharge of contaminants, which includes vertebrate toxic agents.

The essential parts of a system to manage any risks include:

(a) Clear allocation of responsibilities;

(a) Accurate and up-to-date information on the characteristics and properties of the vertebrate toxic agent, its effects on human health and safety and the environment, and the risks to trade in primary produce, animal welfare and bio-security.

(b) Proper documentation;

(c) Adequate education and training of agrichemical users.

2.1 Contracts

All operations involving the aerial application of vertebrate toxic agents shall be covered by a contract between the aerial operator and the client. The client may be a vector manager or vector contractor, Government agency, local government or a private individual. Items that must be included in such a contract are given in Appendix A.

The final contract for any specific use of VTA shall make it clear which items are the responsibility of the aerial operator. For any other items described in Appendix A the aerial operator should confirm that these tasks have been or will be carried out.

2.2 Competency

The pilot of an aircraft will not need to have a controlled substances licence (CSL) for applying vertebrate toxic agents (formerly known as vertebrate poisons). However for handling and loading VTA's into aircraft there must be someone on site who has a CSL for VTAs.

To obtain a CSL you need to:

- Be 17 yrs of age or over
- Require the substance for your work
- Be a fit and proper person
- Have an Approved Handler Certificate

Approved Handler (AH) Certificates are issued for specific classes of hazardous substance. The AH certificate required for a CSL must be endorsed for VTAs. A person who does not have a CSL may possess a VTA if they are under the immediate supervision of someone who does hold a CSL.

3. Transport

For transport, the potential danger of a VTA is described in terms of a dangerous goods classification. Dangerous goods are those substances classified as dangerous for transport by the United Nations (UN) Committee of Experts on the Transport of Dangerous Goods. Dangerous goods therefore have a UN Number. UN numbers can be specific to the substance or generic.

Substance	**UN number**	**Class**	**PG**	**TR**
1080	2629	6.1	III (Note that 1080 liquid is PG I)	Y
Brodifacoum	3024, 3025,3026,3027	6.1	-	N
Pindone	2902,2903, 3021	6.1	III	N (for pellets – the concentrate pindone must still be tracked)

TR = Tracked substance

The provisions outlined in NZS 8409:2004 Management for Agrichemicals apply with respect to transporting dangerous goods. In summary there are two situations:

a) The substance is being transported for your own use (as tools of trade but not for hire and reward) and the quantity being carried is less than the limit determined by the Packing group (PG). In this case the requirements for safe loading, load protection and security apply, with the outer packaging clearly identifying what substance is being carried. No vehicle placarding is needed and no DGD is required, although information on what to do in an emergency is required.
b) The substance is being transported for hire and reward or in amounts greater than the maximum quantities listed in Schedule 1 of the Land Transport Dangerous Goods rule. In this case vehicle placarding is required, the driver must hold a D endorsement on their licence, and DGD documents shall be carried.

3.1 Controlled substances Licence
If a person is only transporting VTAs then a controlled substance licence (CSL) will not be required. The person who drives loads and unloads the vehicle transporting the VTAs shall have a current dangerous goods endorsement on their licence.

Where VTAs are tracked, they must be delivered to a CSL holder or secured until that time.

4. Storage

4.1 Scope
This section describes the requirements for the safe storage and handling of vertebrate toxic agents (VTAs) according to NZS 8409 2004 Management of Agrichemicals and the HSNO Regulations.

The hazard classification for VTAs that can be applied by air is given in Appendix B

4.2. Storage facility requirements
A suitable store for VTAs includes the following:

a) Location
The store shall be sited so that the risk of contamination to people and the environment is minimised. A minimum separation of 10 metres physical distance between the store and any habitable work area is recommended. Note that local authorities may have zoning or regional rule restrictions.

b) Store specifications
The physical construction of the store needs to achieve 3 main things –

- Contain any spills. That means some form of bunding for liquids, and/or a method of retrieving spillage of any solid (granular) material
- Maintain the stored material in good condition – moisture control being the most important.
- Be secure – which means access by children, unauthorized person, pets, livestock or vermin is prevented.

c) Signage and placarding
There shall be a clear indication to any person what is in the store what the store contains. The HSNO (Identification) Regulations include specific requirements for signs according to the hazard classification of the substance and the amount in the store (see Table 4.1). See Appendix B for the hazard classification of VTA's applied by air. Signs on the store shall be clearly visible from all lines of approach. Signage requirements are triggered by the amount of substance stored.

Table 4.1 Trigger levels for signage (see Appendix B also)

	Amount (trigger level)				
	50 kg/L	100kg/L	250kg/L	1000kg/L	10 000kg/L
HSNO class	3.1A 6.1A 8.2A	9.1A 9.2A 9.3A 9.4A	3.1B 6.1B 8.2B	3.1C 6.1C 8.1A 9.1B, 9.1C 9.2B, 9.2C 9.3B 9.4B 9.4C	3.1D 6.1D 9.1D 9.2D 9.3C

Pictograms can be used as a priority identifier to indicate the hazard.

For Toxic (Class 6) substances:

For Ecotoxic (Class 9) substances

4.3 Temporary storage

A temporary storage site is where VTAs are held for periods longer than 24 hours without supervision, for example during a large application task. Temporary storage sites shall comply with all the requirements of a permanent storage site.

Note: A transit depot is a permanent place designed to hold hazardous substances in unopened containers while they are in transit. It excludes any place where the substances are held for sale or supply. Substances can be held in a transit depot for no more than 3 days.

4.4 Store management

4.4.1) Access and approved handlers
The person in charge of the store shall be responsible for ensuring that access to the store is available only to authorized persons. That may include a requirement to hold an approved handler certificate.

Note: The Person in Charge is in control of the place where hazardous substances are present. They could be the owner, lessee, sub-lessee or occupier of the place, location or depot. In effect it is the person who is in control or possession of the relevant part of the site.

4.4.2) Documentation
Under the HSNO (Identification) Regulations the person in charge of the place of work may be required to hold certain documentation on the substances being stored. The person in charge shall hold a Safety Data Sheet (SDS) or equivalent for all VTAs held in store.

4.4.3) Record keeping and manifest
In addition to the SDS, further information on VTAs held shall be maintained. For tracked substances, this includes:

a) The identity of the AH (if required) in control of the tracked substance, including their name, position in the organization, address of their workplace, and a details of the hazard classifications, life cycle stages and expiry date of the AH certificate held.

b) Specific identity and total amount of each VTA stored

c) Location: to be able within 2 minutes to find the record showing the exact location of the tracked substance and within 1 hour being able to physically locate the substance at the place shown by that record (unless the Emergency Response Plan specifies a shorter time

d) Transfer: tracked substances – information identifying what was transferred and the amount, the where it was transferred to (address), the identity of the AH who will be in control of the substance and the date of transfer.

e) Disposal details: tracked substances – the manner of disposal, the date and amount disposed of and the location of the place where the substance was disposed of.

Records shall be maintained for at least 12 months. Where tracked substances are disposed of (including use) records shall be kept for 3 years.

A storage register shall be kept in a safe position away from the store, and in the event of an emergency it shall be immediately available to any emergency services.

4.5 Competency

Under HSNO, to possess specified VTA's you will need a controlled substances licence (CSL). Possession means manufacturing, selling, using or storing the substance. If you are transporting the substance only then you will not need a CSL, but you will need an approved handler certificate. Also, because VTA's are tracked, they must be delivered to a CSL holder or secured until that time.

To obtain a CSL you need to:

- Be 17 yrs of age or over
- Require the substance for your work
- Be a fit and proper person
- Have an Approved Handler Certificate

5. Use of Vertebrate Toxic Agents

5.1 Scope
This part of the Code covers the operational phase – the application of VTAs. Only those activities or tasks that are under the control of or are the responsibility of the aerial operator are covered. Responsibilities for the various tasks in the application of VTAs shall be clearly allocated, and the people carrying out those tasks shall be competent to do so.

All aerial application of VTAs shall be according to a written contract between the aerial operator and the contractor (client). Areas that such a contract should cover are summarised in Appendix A

5.2 Risk management
The key to risk management is to first identify the risks, then to clearly allocate responsibility for managing the identified risks. The risks from VTA application range from accidental poisoning to environmental damage from inaccurate bait application. Management of these risks is best achieved by breaking down the operation into tasks (see 5.4). These tasks form the basis for the contract between the aerial operator and the client.

a) All complaints shall be documented and forwarded to the aerial operator's operations manager or person delegated to deal with such matters as soon as possible.
b) If the pilot suspects, or knows, there has been a bait over fly, he or she shall immediately notify the contractor's operations supervisor and assist him or her in identifying the problem area and to undertake the actions deemed necessary. See also 5.4.9
c) Where there is a complaint involving poison bait over-flies, the aerial operator's operations manager or delegated person is to advise the Executive Officer of the NZAAA as soon as possible. A written report is to be provided to the NZAAA Executive Committee using the form in ANNEX D of the NZAAA Accreditation manual.

5.3 Personal Protective Equipment (PPE)
Exposure to VTAs should be minimised by wearing the appropriate PPE. PPE should be fit properly and be replaced when necessary. PPE should be removed and hands and face washed prior to eating, drinking or smoking. PPE should be cleaned at the end of the day and stored securely. PPE requiring washing (eg overalls) should be done at a commercial cleaner.

The following PPE is recommended when handling VTAs:

a) For people involved in loading the bucket or hopper near or beneath the aircraft -

PVC or Nitrile or Neoprene elbow length gloves for liquid formulations and wrist length for pellet (solid) formulation, overalls – preferably white, rubber boots or gumboots with steel caps as required, respirator – a half face respirator with P2 particle filters is recommended, hearing and eye protection as required and a high visibility safety helmet with chin strap.

b) For people involved in loading the bucket or hopper away from the aircraft -

PVC or nitrile gloves, white overalls, rubber boots or gumboots with steel caps as required, dust masks and eye protection.

For other PPE recommendations or requirements, personnel should refer to the Manufacturers Safety Data Sheet, product label, and NZS 8409.

PPE shall be removed and hands and face washed prior to eating, drinking or smoking. PPE should be cleaned at the end of the day and stored securely. PPE requiring washing (eg overalls) should be done at a commercial cleaner.

5.4 Responsibilities

Various tasks in the use of VTAs are identified below. Separate people may carry out these tasks, for example, the aerial operator or ground crew, or a subcontracted person. The aerial operator shall accept responsibility for each task unless other arrangements have been made and documented. In cases where the same person carries out all of the tasks, that person shall also accept responsibility for each of the tasks.

All VTA users shall be responsible for minimizing potential risks to themselves, employees, the public, animals and the environment. Note that in some cases, for example Department of Conservation or a Regional Council, a formal contract will exist where some of the tasks identified here will already have been carried out by the contractor, for example permission from the MoH for the application of VTAs. In these cases the aerial operator shall verify that the task has been completed.

5.4.1.Licences and consents obtained

All licences required shall be current and all consents shall be read and understood. They include:

a) Medical Officer of Health permit (1080 application)
b) Resource consent
c) Personnel with controlled substance licence available on site
d) Current chemical rating held by the pilot
e) Insurance cover current and sufficient – a minimum of $200,000 Chemical Liability Insurance and $1M Public Liability Insurance Is required

The requirements or conditions attached to a Medical Officer of Health permission or Regional Council resource consent in relation to the aerial application of a vertebrate toxic agent that are the responsibility of the aerial operator shall be specified in the contract.

5.4.2 Identification of the target (treatment) area

The external boundary of the treatment area shall be clearly defined. Within and adjoining to the treatment area, exclusion zones, water supply catchments, water supply intakes, sensitive areas and no fly zones shall be clearly identified.

a) All operational boundaries shall be physically flown, logged and recorded by the on-board GPS navigational guidance equipment to be used for bait application. The use of electronic shape files as the exclusive means of recording boundaries is not permitted unless the boundaries with sensitive areas can also be identified by other specified means.

b) The digitised map of the operational area shall have at least 6 control points of recognisable features identifiable on the ground and on the map, geographically spread within the treatment area.
c) For sensitive boundaries and exclusion zones, a 150 m zone within the treatment area shall be allowed that will be flown parallel to the boundary.
d) Any specified water bodies identified by the MoH or Council shall be excluded by plotting a buffer zone (zero bait application) around or from the edge of the water body. The buffer zone distance shall be specified in the contract. Note that there is a no fly requirement over any waterway that is less than 100m upstream from the point of extraction for public drinking water supply.
e) Loading sites shall be identified. Where the loading site is outside the treatment area a flight path to the treatment shall be established in consultation with the contractor (or a person with delegated authority)
f) Aircraft using external under slung application equipment shall not deviate from established flight paths with the equipment fitted regardless of whether the equipment is empty, contains non-toxic feed bait or toxic bait.

5.4.3 Notifications, (including dog protection information)
For all aerially applied 1080 the public must be given sufficient prior notice, but no more than 2 months before the proposed application, informing them of

a) What is being used
b) When it is to be used
c) Where it is to be used
d) Identity of the responsible person

Appropriate warnings in regard to potential harm are required (eg dogs to be kept out of the area. The application shall not be earlier than the date of application stated in the public notification and, if the product has not been applied within 2 months the notification is invalid. Notification methods shall be by a public notice in the local newspaper for the area concerned and may also include mail out, phone, fax, or

visit to landowners/affected parties.

Note: Normally, notification will be the responsibility of the contractor.

5.4.4 Signage
Signs must be posted at every normal point of entry around the perimeter of the treatment area at least 3 days before the application. The signs shall remain in place until monitoring confirms that the product (VTA) is no longer present. The signs must:

a) Identify the person applying the substance and give their contact details
b) Identify the substance and state that it is toxic to humans and other vertebrates
c) Give the date of application
d) Be clear and legible from a distance of not less than 2 metres

Signs shall remain until the substance is either no longer toxic or has been retrieved. At which time they shall be removed

Note: Normally, signage will be the responsibility of the contractor.

5.4.5 Verification of Boundaries
Aerial confirmation of boundaries must be done prior to the actual application of bait.

a) The aircraft shall fly the boundaries of the treatment area using GPS and the digitized map, and compare known positions from the map with control points and other recognizable ground features. Confirmation of the boundaries may require the assistance of a navigator – a suitably qualified person familiar with the area (eg the contractor's Operations Supervisor). Boundaries shall be verified to ensure that no toxic material is applied outside the treatment area. For sensitive boundaries and the use of 1080 it may be appropriate to physically mark key points on the ground beforehand for example using coloured tape or flags to ensure the boundary is cleared identified.
b) A pre operational briefing shall be carried out and a verified map of the treatment area shall be available to all pilots involved with the application. The map shall include any designated exclusion areas and flight path(s).
c) It is recommended that pilots who are unfamiliar with the treatment area, sensitive areas, exclusion zones and nominated flight paths, conduct an aerial reconnaissance with the contractor's operations manager (or his designated representative) to familiarize themselves with the operational areas.

5.4.6 Aircraft Loading
Equipment used to load the hopper or bucket shall be suitable for the job such that poisoned baits can be loaded without spillage either onto the ground or onto any part of the aircraft or bucket where the slipstream could cause the spilled bait to drop outside the target area.

a) Only trained personnel who hold a controlled substances licence shall load the aircraft. Alternatively, a crewmember being supervised by a person who holds a controlled substances licence, may load the aircraft.
b) Appropriate PPE and safety equipment is to be used. See 5.3

5.4.7 Application equipment

a) Application equipment used for bait dispersal shall be calibrated. An independent certification of the swath width and pattern (baits per $m^{2)}$ shall be available. The certification shall state the application rate, kg per ha of bait, the swath width from a single pass, the airspeed at which the test was conducted and a description of the type of bait tested (eg cereal 12g pellets) and details of the person carrying out the certification test). Note that the bait quality (size and consistency) shall also be checked by the aerial operator to verify that it is consistent with that specified by the contractor and with the specifications for equipment certification.
b) The application equipment shall be free from contamination and in good operating order.
c) The stop/start mechanism for bait release shall be reliable and should default to a closed position in the event of mechanical or other failure
d) The equipment shall have suitable systems to prevent the casual release or spillage of bait. In situations where the loading area is outside the operational area the hopper or bucket shall have secure lid or shield to prevent spillage

5.4.8 Monitoring Bait Output

a) At the start of the operation the initial application rate shall be confirmed as meeting the required rate. This can be achieved by checking the total amount of bait applied in a load applied within the treatment area, with the area covered as indicated by the GPS output. Initial loads are normally flown around the boundaries so the first load is not always appropriate to do this check.
b) Application rate shall be monitored during the course of the operation. Comparing the kg applied for each bucket load with the area covered as indicated by the GPS output, and comparing these data with earlier application rate checks during the day can achieve this.

5.4.9 Unintended application of substances
If there is lost, spilt or unintended application of 1080 the person who was in charge of the substance at the time the incident occurred shall, within 24 hours, report the matter to the nearest police station, Medical Officer of Health, the owner of the land on which the loss or misapplication occurred and the person on whose behalf the substance is being applied.

5.5 GPS equipment
All aircraft carrying out application of VTAs shall be fitted with Global Positioning Equipment (GPS). The equipment fitted shall have the following capability:

a) Operate with a stable, steady and consistent signal strength to provide a track guidance accuracy of ± 2 metres.
b) Record aircraft flight path (track made good)
c) Record aircraft secondary tracking
d) Provide printed plot reports at the end of each operational day showing areas covered and tracks flown
e) Record product swath width
f) Be able to direct the pilot to restart positions (eg where bait has run out) and to areas that require further coverage.

All pilots shall be current and competent in the use of the GPS equipment fitted.

5.6 The treatment area and operation of the aircraft

a) Only personnel essential to the operation shall be carried during the operation. Where an observer is being used the pilot shall determine the sowing runs.
b) The aircraft shall maintain a minimum height of 500 feet AGL except when landing, taking off, or when applying bait
c) All turns are to be completed within the treatment area boundary. The only exception to this is where island operations are being carried out in which case turns may be carried out over the sea.
d) Notwithstanding the use of GPS, it remains the pilots responsibility to prevent product over flies
e) Bait operations shall cease if the wind speed exceeds 20 km/hr for boundaries of the block and exclusion zones and 35 kph elsewhere.
f) At no time shall the aircraft fly over buildings, dwellings, a public drinking water supply or populous areas if application equipment is attached.

g) A minimum fuel reserve of 30 minutes shall be maintained when conducting bait operations
h) No unauthorized personnel shall be allowed onto the operational area.
i) If unauthorized personnel enter the operational area the pilot, or the crewman in his absence, shall suspend the operation until the operational area has been cleared.
j) It shall be the clients' responsibility to ensure unauthorized personnel are removed from the operational area.

5.7 Documentation

a) A daily flight record is be filled out for each poison bait operation and shall include at least:

- Details of the product(s) applied and rate(s) of application
- Total area treated
- Total number of loads
- Weather information at the time of application
- Flight and duty details

b) All forms and records required by this Code of Practice, any other relevant rule, standard or authority, shall be handed to the aerial operator's operations manager or delegated person for retention as required.

6. Emergency management

The Hazardous Substances (Emergency Management) Regulations 2001 and amendments prescribe the requirements to manage an emergency involving a hazardous substance.

The person in charge shall establish a logical and systematic plan to identify, evaluate, monitor and communicate the risks associated with the transport, storage or use of VTAs.

The two main risks are:

a) Accidental occupational human exposure
b) Spillage and consequential environmental contamination

The risk management response may range from the provisions of information eg first aid instructions to specific emergency response plans.

6.1 Emergency response information

The HSNO Emergency Management) Regulations have three levels of emergency management, each triggered by the amount of hazardous substance – see Table 6.1

Table 6.1 Emergency Response Levels, Vertebrate Toxic Agents

Substance	HSNO Classification	Quantity for response level		
		Level 1	Level 2	Level 3
1080 pellets 0.4 – 0.8 g/kg	6.1C, 9.3B	Any quantity	Any quantity	100 litres or kg
1080 pellets 1.5 – 2.0 g/kg	6.1B, 6.8A, 9.1D, 9.3A	Any quantity	Any quantity	100 litres or kg
1080 soluble concentrate 200 g/litre	6.1A, 6.3B, 6.4A, 6.8A, 6.9A, 9.1A, 9.3A, 9.4B	Any quantity	Any quantity	100 litres or kg
Brodifacoum bait 0.02 g/kg	6.9B, 9.1D, 9.3B	1 kg	3 kg	10 000kg
Pindone soluble concentrate, 34 g/litre[4]	6.1C, 6.4A, 6.9B, 9.1B, 9.3A	Any quantity	Any quantity	100 litres
Pindone bait 0.25 – 0.5 g/kg pindone	6.9B, 9.1D	1 kg	3 kg	10 000kg

The information required for the three levels is as follows:

Level 1 General information about the VTA (s) stored is required so that the risk to individuals can be managed. This includes a list of the total amount held and the information that clearly identifies each one (i.e. the chemical name), together with the priority identifier (e.g. Toxic Substance). A 24-hour emergency service telephone number **shall** also be recorded. The information required will be found on the product label.

Level 2 More detailed information is required as this level deals with the workplace where several people may be present. Suppliers who are selling VTAs in amounts that require level 2 emergency planning **shall**, if requested, provide emergency management information, e.g. what preparations should be made, what equipment might be needed, and what actions should be taken.

The operator shall have a copy of the Safety Data Sheet for any VTA being handled as it has the information needed for level 2

Level 3 This level requires emergency response plans to be developed, as well as secondary containment and site signage. This is in addition to the requirements of level 1 and 2

6.2 Emergency Response Plan
The requirements for an emergency response plan are set out in NZS8409 2004, Appendix K 5. In summary the plan shall provide for:

- The identification of hazardous substances (the manifest);
- Rapid evacuation and accounting for everyone on the site;
- Self protection;
- First aid;
- Containment;
- Re-establishing controls and the location of the appropriate equipment;
- The appropriate response for all reasonably likely emergencies that may arise from a failure of controls (including the sequence of action to be taken, see Table 6.2) :

  (i) Spillage
  (ii) Transport accidents involving VTAs
  (iii) All other natural disasters (poisoning, flooding)

- Briefing neighbours about the plan;
- Compliance with the approved codes and legislation (e.g. the Hazardous Substances (Emergency Management) Regulations 2001).

An emergency response plan shall be tested at least once every 12 months, or within 3 months of any change to persons, procedures or actions on the plan with the results of any test documented. Documentation shall be retained for at least 2 years

The equipment, material and people specified in the plan **shall** be available. The people specified by the plan **shall** be able to reach the site in the time specified and be able to perform the duties and provide the advice required within a specified time.

The plan **shall** be available to every person specified in it and the appropriate emergency service.

Table 6.2 Hazard Register

HAZARD	POTENTIAL HARM	CONTROL MEASURES
Accidental poisoning	▪ Illness ▪ Death	▪ Wash after handling ▪ Adequate training ▪ Adhere to label instructions ▪ Wear required PPE ▪ Adhere to relevant Code or SOP's
Toxin over-fly or drift	▪ Illness ▪ Environmental damage ▪ Livestock endangerment	▪ Identify all sensitive adjoining areas ▪ Comply with any consents or conditions imposed ▪ Read the product label ▪ Comply with Code or SOP's
Toxin or agrichemical spillage	▪ Illness ▪ Environmental damage ▪ Livestock endangerment	▪ Comply with Code or SOP's
Public within application area	▪ Illness	▪ Ensure notification requirements have been complied with ▪ Erect warning signs at access points
Illegal interference	▪ Illness ▪ Environmental	▪ Comply with Code or SOP's ▪ Store only in secure approved stores and never leave stores unlocked ▪ Do not leave unattended when transporting or using unless securely locked away

Appendix A: Summary of requirements to be included in a contract for aerial application of vertebrate toxic agents

The following table lists the main items that a contract for the aerial application of VTAs should address. Not all of these items will be the responsibility of the aerial operator, but it is good practice to check that those items not the responsibility of the aerial operator have been met by the contractor or delegated person.

Use (Application)	
Contract Item	**Comment (operator checklist)**
All licenses, permits and consents obtained	• MoH permit sighted • Pilots and ground crew licences and ratings current
Boundaries of operational/treatment are defined	• Exclusions zones, water supply catchments and intakes, any other sensitive areas • Buffer zones mapped and specified
Notifications[1]	• Public and other affected parties notified within the required time • Appropriate information provided
Signage[1]	• In the right areas • Signs have the required information • Sign removal after the operation
Loading equipment and practice	• Holder of controlled substance licence available at the loading site[1] • Appropriate equipment available, including PPE
Application equipment calibrated	• Bait quality check • Provision for monitoring bait output at the specified application rate • GPS equipment fitted • Pilot current and competent in GPS • Capability to achieve ± 2 m of required track • Secondary tracking available
Aircraft operation	• Flight paths plotted

Documentation	• Reports produced each day on areas treated • Daily flight records • Emergency response plans in place according to the type and amount of VTA • Safety Data Sheet available for all VTAs used

1 = these activities are normally part of the contractors responsibilities and not the aerial operators responsibility but the aerial operator should ensure that these requirements have been met

Transport	
Contract Item	**Comment (operator checklist)**
VTA transport	• Driver holds D endorsement • Holder of Controlled substances Licence available to receive the VTA (1080 and Pindone)
Storage	
Contract Item	**Comment (operator checklist)**
VTA Storage	• Store specification acceptable • Signage/placarding in place • Documentation in order • Controlled substance licence held (not needed for brodifacoum)

Appendix B: Hazard classification – Vertebrate Toxic Agents

Substance	HSNO Class	CSL[5]	Signage[1]	Hazchem
1080 pellets[2] 0.4 – 0.8 g/kg	6.1C, 9.3B	Y	1000kg	2X
1080 pellets 1.5 – 2.0 g/kg	6.1B, 6.8A, 9.1D, 9.3A	Y	100kg	2X
1080 soluble concentrate[3] 200 g/litre	6.1A, 6.3B, 6.4A, 6.8A, 6.9A, 9.1A, 9.3A, 9.4B	Y	50 litres (or 50 kg bait)	2X
Brodifacoum bait 0.02 g/kg	6.9B, 9.1D, 9.3B	N	1000kg	Not allocated
Pindone soluble concentrate, 34 g/litre[4]	6.1C, 6.4A, 6.9B, 9.1B, 9.3A	Y	100 litres	Not allocated
Pindone bait 0.25 – 0.5 g/kg pindone	6.9B, 9.1D	Y	10,000kg	Not allocated

1 = Signage requirements depend on the amount of the VTA stored and if the values given are exceeded then signage is required

2 = 0.4 – 0.8 g/kg sodium fluoroacetate

3 = The soluble concentrate is mixed with food bait

4 = The soluble concentrate may only be mixed with food bait if

a) the bait is carrots or cooked oats
b) the amount of pindone in the food bait does not exceed 0.2 g per kg on average
c) for carrot food bait, no piece of carrot may have a dimension less than 16 mm

Note that for aerial application, pindone can only be applied by air on contract to either DOC, a regional council or a unitary authority.

5 = Controlled Substances Licence. Note that for aerial application the pilot is not required to hold a CSL, but there must be someone present at the loading site who does hold a CSL