



DECISION

Date	06 September 2017
Application code	APP203346
Application type	To import into containment any new organism under section 40(1) of the Hazardous Substances and New Organisms Act 1996
Applicant	Landcare Research
Date application received	18 July 2017
Consideration date	29 August 2017
Considered by	A decision-making committee of the Environmental Protection Authority (the Committee) ¹ : <ul style="list-style-type: none">• Dr John Taylor (Chair)• Dr Kevin Thompson
Purpose of the application	To import into containment parasitoids of the genera <i>Volucella</i> , <i>Leopoldius</i> and <i>Metoecus</i> .
The new organism approved	Species of parasitic flies <i>Volucella inanis</i> , <i>V. pellucens</i> , <i>V. zonaria</i> , <i>Leopoldius brevirostris</i> , <i>L. signatus</i> , <i>L. coronatus</i> , and the parasitic beetle <i>Metoecus paradoxus</i> .

1. Summary of decision

- 1.1 Application APP203346 to import into containment parasitoids of the genus *Volucella*, the genus *Leopoldius* and the species *Metoecus paradoxus* was lodged under section 40(1) of the Hazardous Substances and New Organisms (HSNO) Act 1996 (the Act).
- 1.2 The application was considered in accordance with the relevant provisions of the Act and of the HSNO (Methodology) Order 1998 (the Methodology).
- 1.3 The Committee has **approved** the application in accordance with section 45(1)(a) of the Act, subject to the controls set out in Appendix 1.

¹ The Committee referred to in this decision is the subcommittee that has made the decision on the applications under delegated authority in accordance with section 18A of the Act.

2. Application process

Application Receipt

2.1 The application was formally received for processing on 18 July 2017.

Notification

2.2 Section 53(2) of the Act provides that an application under section 40 of the Act may be publicly notified by the Environmental Protection Authority (EPA) if it considers that there is likely to be significant public interest.

2.3 The EPA Board has delegated the decision to publicly notify applications under section 53(2) to the Chief Executive, who sub-delegated that decision-making to the General Manager Hazardous Substances and New Organisms as of 17 March 2015. The application was not publicly notified because the General Manager did not identify that there would be any significant public interest in this application.

Comments from MPI and DOC

2.4 In accordance with section 58(1)(c) of the Act, the Ministry for Primary Industries (MPI) and the Department of Conservation (DOC) were advised and provided with the opportunity to comment on the application.

2.5 MPI did not comment on this application.

2.6 DOC noted that it supports the research in principle but made a recommendation to the applicant to consider a range of native species for host specificity testing purposes.

2.7 The Committee was satisfied that these comments were taken into account in the consideration of this application.

Information available for the consideration

2.8 The information available for the consideration comprised the application form, the EPA staff advice memorandum and the comments received from DOC.

2.9 The Committee considered that it had sufficient information to assess the application. To the extent that the application may not meet any legislative information requirements, the Committee waived those requirements.

Sequence of the consideration

- 2.10 In its consideration of the application as per the requirements in the Act and the Methodology, the Committee considered whether:
- the application is for one of the purposes specified in the Act
 - the new organism can be adequately contained
 - the controls provide for matters specified in Schedule 3 (Part 2) of the HSNO Act
 - the beneficial effects of having the new organism in containment outweigh the adverse effects of the new organism and any inseparable organism
 - the new organism could escape from containment
 - the new organism could establish an undesirable self-sustaining population
 - the new organism could be eradicated if it established an undesirable self-sustaining population, and the ease of eradication.
- 2.11 Each point is addressed in the following sections of this decision.

3. Purpose of the application and scope of the approval

- 3.1 Landcare Research sought approval to import into containment species of parasitic insects (*Volucella inanis*, *V. pellucens*, *V. zonaria*, *Leopoldius brevirostris*, *L. signatus*, *L. coronatus* and *Metoecus paradoxus*) to research their potential role as biological control agents for invasive social wasps (Vespidae: subfamilies: Polistinae & Vespinae).
- 3.2 The Committee noted that parasitised *Vespula germanica* and *V. vulgaris* wasps as well as wasp nest comb material will be imported with the parasitoids. All adult wasps that emerge from nests will be killed prior to packaging for transport to New Zealand. *Leopoldius* pupae will be imported inside the 'husk' of dead adult wasps while *Volucella* and *Metoecus* species will be imported inside nest combs that contain parasitised wasp larvae.
- 3.3 Section 45(1)(a)(i) of the Act requires that the application be for one of the purposes specified in section 39(1) of the Act. The Committee was satisfied that the purpose of this application falls within the scope of section 39(1)(h) of the Act: "such other purpose as the Authority thinks fit", that being scientific research.
- 3.4 The Committee noted that the use of this approval is not limited to the applicant. Therefore other persons could use this approval provided that they comply with the approved organisms description (Table 1); meet the purpose of this approval (for scientific research); and that they meet the controls specified in Appendix 1. Therefore, the Committee imposed **control 10** requiring all approval users to notify the EPA and MPI that they intend to use this approval prior to first use.

4. Adequacy of the containment regime

- 4.1 Section 45(1)(a)(iii) of the Act requires that the Committee be satisfied that the new organisms can be adequately contained.
- 4.2 To evaluate the adequacy of containment, the Committee assessed the ability of the parasitoids to escape from containment by taking into account:
- the biological characteristics of the flies and beetle that relate to containment
 - the containment regime
 - the potential pathways of escape from the containment facility.

Biological characteristics that relate to containment

- 4.3 The organisms approved for importation into containment for scientific research are all harmless to humans. There are three fly species of the genus *Volucella*, three fly species of the genus *Leopoldius* and one beetle species *Metoecus paradoxus*. They will be imported with *Vespula vulgaris* and *V. germanica* material (dead adults or larvae and nest combs).
- 4.4 Females *Volucella* spp. lay eggs inside the nests of Vespid wasps. *V. inanis* larvae are flattened to fit between the wasp larvae and the nest comb and feed on the wasp brood. *V. pellucens* and *V. zonaria* are thought to be scavengers and/or opportunistic predators in wasp nests.
- 4.5 *Leopoldius* spp. larvae are endoparasites of adult social wasps. Females insert an egg inside their host's abdominal region where it will hatch and develop, killing the wasp.
- 4.6 The female beetle *Metoecus paradoxus* lays eggs on decaying wood. When a worker wasp collects wood pulp for nest construction a beetle larva would jump on the wasp and hitchhike to the nest to feed on wasp larvae.

The containment regime

- 4.7 The Committee has determined the set of controls to be imposed by the EPA, and these are detailed in Appendix 1 of this decision.
- 4.8 The Committee noted that the controls are primarily outcome focused, specifying outcomes that must be achieved, rather than prescribing a set method by which the outcome must be achieved. However, all approval users are required to document the procedures that specify how the controls will be implemented and complied with, and the quality control measures that will be used to ensure those procedures are effective and complied with. Further, the approval user must operate the containment facility in compliance with that documentation as per **controls 3 and 4**.
- 4.9 The Committee was satisfied that the controls set out in Appendix 1 establish a containment regime that manages the risk of these parasitoids escaping from containment. The Committee was

satisfied that the containment regime provides for each of the applicable matters specified in Schedule 3 (Part 2) of the Act (*Matters to be addressed by containment controls for new organisms excluding genetically modified organisms*).

The potential pathways for escape from containment

- 4.10 The Committee identified the potential pathways of escape from containment of parasitoid insect species of the genera *Volucella*, *Leopoldius*, and *Metoecus* and assessed these pathways against the containment regime (including the requirements of the controls in Appendix 1) and the biological characteristics relating to containment.
- 4.11 The following potential pathways of escape were identified by the Committee:
- escape during movement within, to, or from containment facilities
 - escape via accidental or unobserved flight from containment facilities
 - escape via accidental, unintentional or deliberate removal by unauthorised persons
 - escape via accidental, unintentional or deliberate removal by research staff or other facility personnel
 - escape in waste or contaminated equipment
 - escape due to the presence of undesirable organisms (vermin)
 - escape via failure of containment regime through inadequate maintenance/upkeep of regime
 - escape via failure of containment regime following fire or natural disaster.
- 4.12 The Committee noted that the containment requirements (Appendix 1) include controls that address each of the identified pathways of escape. Those controls include specifications regarding moving the approved organism (**controls 8, 12 and 13**), limiting access to the facility (**controls 14-16**), removing equipment and waste from the facility (**controls 17 and 18**), dealing with undesirable organisms (**control 19**), entering and exiting the containment facility (**control 7**), training of laboratory personnel and other people entering the facility (**control 20**), design, construction and maintenance of the facility (**control 5 and 6**), and monitoring and inspection of the containment measures (**controls 23 and 24**).
- 4.13 The Committee noted that approval users will need to demonstrate how they are meeting each control, including documenting the procedures that specify how they will meet the controls (**control 3**), and that they must operate in compliance with those documented procedures (**control 4**). The Committee also imposed **control 2** specifying the parties responsible for ensuring compliance with the controls, and **controls 9-11** specifying notifications to the EPA and MPI.

Conclusion on adequacy of the containment regime

4.14 The Committee concluded that it is **highly improbable** that parasitoid insect species of the genera *Volucella*, *Leopoldius*, and *Metoecus*., would be able to escape from containment, taking into account the:

- biological characteristics that relate to containment.
- potential pathways of escape from the containment facility.
- containment regime and controls.

4.15 Overall, the Committee was satisfied that these parasitoid insects can be adequately contained.

4.16 In particular, the Committee considered that the controls imposed in Appendix 1 provide for each of the applicable matters specified in Schedule 3 (Part 2) of the Act (as required under section 45(2) of the Act).

4.17 Section 45(2) provides that an approval may include controls that provide for any other matters in order to give effect to the purpose of the Act. The Committee considered that no further additional controls are required to achieve the purpose of the Act, but imposed **controls 3, 4, 10 and 11** for administrative purposes and to enable MPI to measure compliance with the controls.

5. Ability of the organism to establish an undesirable self-sustaining population and ease of eradication

5.1 In accordance with sections 37 and 44 of the Act and clause 10(e)(f) of the Methodology, the Committee took into consideration the ability of the new organism to form an undesirable self-sustaining population should it escape containment, and the ease of eradication of such a population.

5.2 The Committee noted that in the highly improbable event of escape, it is possible that a self-sustaining population could establish, provided a gravid female escapes or sufficient numbers of male and female flies or beetles escape that could find one another to mate and locate a suitable host to parasitise and reproduce offspring.

5.3 The Committee noted the applicant will source the insects in the Northern Hemisphere. The Committee concluded that in the highly improbable event a breeding pair or gravid female escapes containment it would be unlikely they survive in the environment because they will not be synchronised to New Zealand climatic conditions

5.4 The Committee considered that, if such a population did establish, eradication might be possible if the flies and/or beetles established in a limited area, but this would likely require the use of an organophosphate insecticide to kill the escapee population of insects in the field. The Committee also

noted that it would be difficult to identify the flies because they morphologically mimic wasp or bee species.

- 5.5 The Committee considered that in the highly improbable event of a breach of containment, all possible measures should be taken to either retrieve or eradicate the organisms as per **controls 21** and **22** (requirements for contingency plans).

6. Identification and assessment of potentially significant adverse and beneficial effects

- 6.1 The Committee is required by section 45(1)(a)(ii) to take into account all the effects of the organisms and any inseparable organism, and consider whether the beneficial effects of having the organisms in containment outweigh the adverse effects of the organisms and any inseparable organism.
- 6.2 The organisms included in this approval are *Volucella inanis*, *V. pellucens*, *V. zonaria*, *Leopoldius brevis*, *L. signatus*, *L. coronatus* and *Metoecus paradoxus*.

Potentially significant adverse effects of having parasitoid insect species of the genera *Volucella*, *Leopoldius*, and *Metoecus* in containment.

Potentially significant adverse effects on the environment

- 6.3 The potential for parasitoids in the genera *Volucella*, *Leopoldius*, and *Metoecus* to cause adverse effects on the environment is limited by the containment requirements of this approval. No potentially significant effects of having these insects in containment have been identified in relation to the environment.
- 6.4 The Committee noted that known members of flies in the genera *Volucella*, *Leopoldius* mainly target species in the order Hymenoptera. The beetle *Metoecus paradoxus* exhibits a higher degree of specificity, parasitising wasps in the family Vespidae (mainly *Vespula vulgaris*).
- 6.5 In the highly improbable event of escape from containment there is minimal likelihood for these insect species to cause adverse effects on the environment through parasitism of valued native or introduced species, or competition with valued native or introduced species. There are no native wasps in the family Vespidae in New Zealand. Furthermore, the applicant intends to undertake research to better understand the potential for these insects to act as biocontrol agents for invasive vespid wasp species that are present in New Zealand.
- 6.6 The Committee noted that the purpose of importing these potential biocontrol agents is to research their biology, including host range, to better understand their potential effects on the New Zealand

environment. The outcome of this research will help the applicant to seek an approval to fully release a biocontrol agent for invasive wasps in the future.

Potentially significant adverse effects on Māori culture and traditions

- 6.7 The Committee did not identify any adverse effects on Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, valued flora and fauna, and other taonga; as insects will be held within approved containment facilities which have structural requirements and operational procedures to prevent escape.

Potentially significant adverse effects on human health and safety, on society and communities and on the market economy.

- 6.8 Flies in the genera *Volucella* and *Leopoldius* as well as the beetle *Metoecus paradoxus* are not known to be allergenic or to sting humans. In addition, these parasitoid insect species will be held in containment, limiting potential exposure of members of the public. Research staff will be trained to handle the organisms and take any necessary precautions to prevent adverse effects.
- 6.9 No potentially significant adverse effects on human health and safety, on society and communities and on the market economy have been identified in relation to having these organisms in containment.

Potentially significant benefits of having parasitoid insect species of the genera *Volucella*, *Leopoldius*, and *Metoecus* in containment.

- 6.10 The applicant noted that social wasps are significant pests of many native insects in New Zealand. The identification of successful biocontrol agents would result in benefits for the apiculture industry, the environment and communities. The introduction of a biocontrol agent that is safe for use could reduce competition for food, increase biodiversity and increase enjoyment of the outdoors. The Committee further noted that the benefits from a biocontrol programme against social wasps would not eventuate directly from this approval, but recognised that the future benefits could not occur without completion of the research intended by Landcare Research.
- 6.11 The main benefit of having the flies from the genera *Volucella* and *Leopoldius*, and the beetle *Metoecus paradoxus*, in containment is the potential gain of new scientific knowledge relating to their biology and host range.

Conclusion on the risks, costs and benefits

- 6.12 After considering the relevant information, the Committee did not identify any potentially significant adverse effects from importing parasitoid insect species in the genera *Volucella* and *Leopoldius*, and the beetle *Metoecus paradoxus*, into containment. Therefore, the Committee considered that any adverse effects of the new organisms would be **negligible**.

6.13 After considering the relevant information, the Committee identified beneficial effects and considered that those beneficial effects would be **non-negligible**.

7. Evaluation and weighing of beneficial and adverse effects

7.1 The Committee considered that they had sufficient information to weigh the effects of the new organisms in containment.

7.2 The Committee concluded that the potential adverse effects of importing the new organisms into containment were **negligible**, and that the benefits were **non-negligible**.

7.3 Given that there were no adverse effects identified, consideration of whether the adverse effects may aggregate in order to assess any cumulative effects was not relevant.

7.4 The Committee took into account all the effects of the new organisms, and all the measures available for risk management, and concluded that it was evident that the beneficial effects outweigh the adverse effects.

7.5 Section 6(f) of the Act requires the Committee to take into account New Zealand's international obligations when determining this application. New Zealand has no obligations which are relevant to this approval.

7.6 The Committee, having considered all the effects of the new organisms in containment and the effects of any inseparable organism, and the matters outlined in section 45 of the Act, concluded that:

- the application is for one of the purposes specified in section 39(1)
- the beneficial effects outweigh the adverse effects of the new organism and any inseparable organism
- the approved organisms can be adequately contained.

8. Achieving the purpose of the Act

8.1 The purpose of the Act is to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms (section 4 of the Act).

8.2 In order to achieve the purpose of the Act, when considering the application the Committee recognised and provided for the following principles of the Act (section 5):

- the safeguarding of the life-supporting capacity of air, water, soil and ecosystems
- the maintenance and enhancement of the capacity of people and communities to provide for their own economic, social and cultural well-being and for the reasonably foreseeable needs of future generations.

- 8.3 The Committee took into account the following matters when considering the application in order to achieve the purpose of the Act (sections 6, 7 and 8 of the Act):
- the sustainability of all native and valued introduced flora and fauna
 - the intrinsic value of ecosystems
 - public health
 - the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, valued flora and fauna, and other taonga
 - the economic and related benefits and costs of using a particular hazardous substance or new organism
 - New Zealand's international obligations
 - the need for caution in managing adverse effects where there is scientific and technical uncertainty about those effects
 - the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).
- 8.4 The Committee was satisfied that this decision is consistent with the purpose of the Act and the above principles and matters.

9. Decision

- 9.1 After reviewing all of the information contained in the application, the Committee was satisfied that the application met the requirements of section 40 of the Act.
- 9.2 The Committee considered that the threshold for approval under section 45 of the Act has been met. It was satisfied that the organisms can be adequately contained and that the beneficial effects of the organisms outweigh the adverse effects of the organisms, taking into account all of the following:
- all the effects of the organisms and any inseparable organism
 - the matters in section 37, 44, and 45, and Schedule 3 (Part 2) of the Act
 - the relevant matters in Part 2 of the Act
 - the Methodology.

- 9.3 The Committee decided to exercise its discretion and **approve** the import into containment of parasitoid insect species in the genera *Volucella*, *Leopoldius*, and *Metoecus* under section 45(1)(a) of the Act. The Committee noted that in accordance with section 45(2) of the Act, the approval has been granted with controls.



Dr John Taylor Chair
Decision Making Committee
Environmental Protection Authority

06 September 2017

Table 1: Approval number for the new organism in application APP203346

Organism	Approval code
<i>Volucella inanis</i>	NOC100193
<i>Volucella pellucens</i>	NOC100194
<i>Volucella zonaria</i>	NOC100195
<i>Leopoldius brevisrostris</i>	NOC100196
<i>Leopoldius signatus</i>	NOC100197
<i>Leopoldius coronatus</i>	NOC100198
<i>Metoecus paradoxus</i>	NOC100199

Appendix One: Proposed controls used for risk assessment

Any person importing the approved organism under the approval granted by this decision (each referred to as the approval holder) must ensure compliance with the controls set out below in respect of any activity they carry out under this approval in a containment facility under their control.

Requirement for the containment of approved organisms

1. The approved organism(s) must be contained.

Requirements for accountability for compliance with controls

2. The organisation, entity or person(s) responsible for the ownership, control and management of the containment facility where the approved organisms are held (including Board members and/or directors) must ensure compliance with the controls of this approval.

Requirement to specify how controls will be met

3. Procedures that specify how the controls will be implemented and complied with must be documented, and these procedures must be reviewed at least annually to ensure they:
 - a) are effective in maintaining containment and achieving their purpose,
 - b) reflect any relevant changes in the facility and its operation, and
 - c) incorporate any improvements to best practice.
4. The containment facility must be operated in compliance with the documentation specified in control 3.

Requirements for the containment regime

5. The containment facility where the approved organisms will be held must be clearly defined, described, and documented, including the location and boundaries.
6. The containment facility must be designed, constructed, managed, and maintained to prevent the approved organism(s) from escaping.
7. Persons entering and exiting the containment facility must do so in a way that does not adversely affect containment of the approved organism(s).
8. The approved organism(s) must be identifiable as a new organism and be able to be linked to the relevant HSNO Act approval.

Requirements for notification to the EPA and/or MPI

9. Notification must be given to MPI of any intended movement of approved organisms outside of the facility, or any proposed modification to the containment regime which may affect the integrity of containment of the approved organism(s), before the actions are undertaken.
10. The EPA and MPI must be notified in writing before this HSNO Act approval is used for the first time.
11. MPI must be notified as soon as possible, and within 24 hours, of any escape and/or breach of containment and the actions taken in response to that incident.

Requirements for moving approved organisms

12. The approved organism(s) must be contained during movement within or to the containment facility.
13. When being moved outside of a containment facility, within New Zealand, the approved organism(s) must be accompanied by documentation stating the:
 - a) Identity of the approved organism(s)
 - b) Containment requirements
 - c) Details of the sender
 - d) Details of the receiving facility.

Requirements to limit access to the containment facility

14. Unauthorised persons must be excluded from the containment facility.
15. All containment facility entrances must be clearly identified including specifying who has the right of access.
16. The number and location of entrances to the containment facility where the approved organism(s) are held must be identified and documented.

Requirements for removing equipment and waste from the containment facility

17. Any waste (including biological material) that may harbour the approved organism(s), or heritable material from the approved organism, must be treated to ensure that the approved organism or any heritable material is killed prior to disposal.
18. Any equipment, that may harbour the approved organism(s) or heritable material from the approved organism, must be treated to ensure that the approved organism or any heritable material is killed prior to the equipment being used for another purpose or being removed from the containment facility.

Requirement for dealing with undesirable organisms

19. The containment facility must be secured and monitored to ensure the exclusion of undesirable organisms that might compromise the containment of the approved organism(s). Requirements for instruction and training.

Requirements for instruction and training

20. Any person (including contractors, staff, students, visitors, and volunteers) entering the containment facility must have received sufficient instruction on the containment regime to enable the person to meet their responsibilities in relation to containment.

Requirements for contingency plans

21. There must be a documented contingency plan for each approved organism held in the containment facility.

22. The contingency plan must be implemented immediately if there is any reason to believe that an approved organism has escaped or been released from the containment facility, or any other breach of containment has occurred.

Requirements for internal inspections and monitoring

23. To ensure containment is being achieved, containment measures must be:
- a) Inspected, monitored and reviewed as appropriate
 - b) Inspected as soon as possible after any event that could compromise the containment regime, such as an Act of God (such as flood, earthquake) or any unauthorised attempt to enter the containment facility.
24. Any remedial requirements identified under control 23, or by any other means, must be actioned as soon as possible.

Interpretation

In these controls, unless the context otherwise requires, the words below have the stated meaning:

approved organism	New organisms approved under application APP203346.
authorised person	Authorised persons are those identified in the containment facility documentation as being allowed to be in the containment facility or any part thereof.
breach	Escape of organism(s), unauthorised entry to the facility and/or the structural integrity of the facility being compromised.
containment	Restricting an organism to a secure location or facility to prevent escape (section 2 of the HSNO Act).
containment facility	A place approved by MPI in accordance with section 39 of the Biosecurity Act 1993, for holding approved organisms.
contingency plan	A plan devised for a specific situation where things could go wrong, for example escape of an approved organism. It contains information, tasks and procedures that are necessary for timely decision-making and response to an unexpected event, or situation where the preferred plan fails.
controls	Any obligations or restrictions imposed on any approved organism, or on any person in relation to any approved organism, by the HSNO Act, or any regulations, rules, codes, or other documents made in accordance with the provisions of this or any other Act for the purposes of controlling the adverse effects of that organism on people or the environment (section 2 of the HSNO Act).
disposal	The action or process of discarding or getting rid of something, including but not limited to burial, incineration, or placing in the general waste. [Excludes the act of transferring to another containment facility under section 29 of the Biosecurity Act]
documentation	Written or electronic records (including manuals, lists, diagrams, maps, policies, procedures, plans and protocols, records of training, access).

EPA	The Environmental Protection Authority.
heritable material	(In relation to an approved organism) viable biological material, including gametes and spores, arising from that organism that can, without human intervention, regenerate the organism or reproduce a new generation of the same species of the organism (section 2, HSNO Act).
HSNO Act	Hazardous Substances and New Organisms Act 1996.
MPI	Ministry for Primary Industries.
MPI Inspector	A person appointed under the Biosecurity Act to undertake administering and enforcing the provisions of the Biosecurity Act.
new organism	Defined by section 2A of the HSNO Act (a) an organism belonging to a species that was not present in New Zealand immediately before 29 July 1998 (b) an organism belonging to a species, subspecies, infra-subspecies, variety, strain, or cultivar prescribed as a risk species, where that organism was not present in New Zealand at the time of promulgation of the relevant regulation (c) an organism for which a containment approval has been given under the HSNO Act (ca) an organism for which a conditional release approval has been given under the HSNO Act (cb) a qualifying organism approved for release with controls (d) a genetically modified organism (e) an organism that belongs to a species, subspecies, infra-subspecies, variety, strain, or cultivar that has been eradicated from New Zealand.
organism	Defined in section 2 of the HSNO Act: (a) Does not include a human being (ab) Includes a human cell (b) Includes a micro-organism (c) Includes a genetic structure, other than a human cell, that is capable of replicating itself, whether that structure comprises all or only part of an entity, and whether it comprises all or only part of the total genetic structure of an entity (d) Includes an entity (other than a human being) declared to be an organism for the purposes of the Biosecurity Act 1993 (e) Includes a reproductive cell or developmental stage of an organism.
treat (with reference to waste)	Kill all approved organisms and make heritable material non-viable.
undesirable organism	Organisms such as rodents, insects, and birds within the containment facility that could compromise containment (dependent on what organism is being contained).
waste	Unusable or unwanted substances or materials (including water, liquids, solids or air).