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1. ABOUT THIS MANUAL

- The rules set out in this document apply to the conduct of staff and students working in the Microbiology Laboratories at the Launceston campus of The University of Tasmania. For the purposes of this document, “Microbiology Laboratories” relates to those rooms within the complex and consists of the: anteroom (M102), Aquaculture micro lab (M108), HLS micro lab (M111), preparation room 1 (M110), preparation room 2 (M109), cold store (M110b), hot store (M110a), store room (M109a) and special project room (M106).

- This manual is designed to assist staff and students in achieving safe work practices and maintaining a safe working environment, however, no finite set of rules will fit all circumstances and the exercise of common sense is essential. If situations occur where doubt exists about safety issues, then the Microbiology Safety Officer or other senior staff should be consulted.

- It will be an important document for the induction of new staff and is essential reading for practical demonstrators who bear the added responsibility for the safety of students under their control. Post-graduate students that are given increased privileges and responsibilities in the microbiology laboratories are also expected to be familiar with the content and implications of the manual.

- Staff members working in this laboratory must be familiar with the reference safety document published by the Australian Standards Association - “Safety in laboratories, Part 3: Microbiology” (AS 2243.3:1995). Copies of this document are available from either of the Microbiology Safety Officers.
2. MICROBIOLOGY SAFETY OFFICER

- The Safety Officers responsible for the Microbiology Laboratories are Dr Stephen Tristram (Human Life Sciences, Ext 5469, Room C213) and Dr Chris Burke (Aquaculture, Ext 3806, Room 27-255).

- In the absence of either Safety Officers, a microbiology staff member (general or academic) should be consulted.

- Not withstanding the roles of the Microbiology Safety Officers in offering and providing guidance on microbiological safety issues, the Employee Safety Representative for the School of Human Life Sciences (Mrs Laura Maddock) will need to be involved for purposes of officially reporting and dealing with specific incidents or identified safety hazards. See section 10: Reporting of Incidents.
3. ACCESS

- Access to the laboratory is restricted to individuals with an understanding of the safety practices employed in the laboratory.

- All staff and students who work unsupervised in the laboratory must complete and induction program and sign a declaration stating that they understand their obligations. See induction.

- The laboratory doors are to be kept closed at all times, and furthermore the outer door must be locked unless a staff member is on the premises.

- Undergraduate students are not permitted to work without a staff member being present in the laboratory complex, and may only work without direct supervision when authorised by a Microbiology Safety Officer. Such authorisation must be in writing (see appendix 1) and sighted by the staff member designated to be present in the laboratory complex while the work is in progress.

- Postgraduate students may work without direct supervision, but must be fully conversant with this manual, and have completed the induction program (see induction).

- Students are not to bring visitors into the laboratories without the permission of a staff member.

3.1 Out of Hours Access

- For OUT OF HOURS access, that is any time other than 0800 to 1800 Monday to Friday, staff or students, are requested to log in and out of the laboratory by phoning security.
4. INDUCTION

All staff and post graduate students that have the need to work unsupervised in the Microbiology laboratories, need to complete the induction program as detailed below. This induction process should be undertaken under the guidance of one of the Microbiology Safety Officers.

1) Read the Microbiology Safety and Staff Induction Manual.
2) Have a tour of the facility with the person guiding the induction.
3) Depending on the intended activities of the person being inducted, specific instruction on the use of the autoclave, biological safety cabinet and liquid nitrogen storage system may be necessary.
4) Complete and sign the Induction Form (see appendix)

The completed and signed induction forms are to be kept in the Microbiology Laboratory.
5. LABORATORY RULES

This set of “rules” is an abbreviated set to which all students must be introduced before commencing any work in the laboratory. Ideally, these rules should be included in all “Practical Manuals” and reinforced formally at the beginning of each unit of study. Likewise, Section 5 (Personal Protective Equipment and Procedures) should also be included in those manuals.

5.1 General Conduct

- Every individual that enters the laboratory has a duty of care to other users, and is expected to behave in a manner that does not compromise the safety of others.

- Regard all organisms and biological materials used in this laboratory as potentially infectious and pathogenic to humans.

- Coats, jackets and other outer apparel should be left outside the laboratory, together with bags and books not required for the laboratory session. Long hair should be tied back neatly, away from the shoulders and enclosed footwear should be worn - (thongs and open sandals are not allowed).

- Eating or drinking are not allowed anywhere within the laboratories.

- Avoid placing any object in your mouth - (pencils, pens, fingers etc). Mouth pipetting is strictly forbidden in the microbiology laboratory.

- Cover any open cuts on hands and other exposed skin surfaces and/or wear gloves.

- Laboratory gowns are provided for your protection and **must** be worn inside the laboratory and are not to be worn outside the laboratory for any reason. At the end of the laboratory session please return the gown to the hook, neatly folded, inside out. If your gown becomes “soiled” during the practical, please advise the demonstrator.

- Familiarise yourself with the location and operation of the following emergency items for each laboratory:
  - First aid kit
  - Fire extinguisher/blanket
  - Gas isolation switch
  - Eyewash station
  - Exits
• Carry out procedures so as to minimise the risks of spills, splashes and the production of aerosols. This applies particularly to the flaming of the bacteriological loop: the loop should be drawn gradually from the cooler to the hotter parts of the flame.

• If you have an accident of any kind call the instructor immediately.

• For minor spills, put on gloves, cover spill with paper towel and pour on disinfectant. Leave for 10 minutes and then mop up.

• The working area should be wiped with disinfectant at the beginning and end of the laboratory session. Always wash your hands before leaving the laboratory.

• No slides or cultures are to be taken from, or brought into the laboratory without permission of the Laboratory Safety Officer.

5.2 Waste Disposal

The waste disposal protocol in the Microbiology Laboratory is designed to separate the non-infectious from the infectious waste. The infectious waste needs to be disposed of in a manner that minimizes the risk to both staff and students and facilitates the recycling of reusable material.

Please follow the instructions carefully and if in doubt - ASK!

5.2.1 Sharps

• There is a dedicated “yellow” sharps container at the back of each laboratory.

• Needles, scalpels blades and other sharp materials are to be disposed of in these containers.

• Always move the “sharps container” to your work place to dispose of such items. Do not under any circumstances wander around the laboratory carrying sharps.

5.2.2 Biogram Buckets

• Containers of general purpose phenolic laboratory disinfectant (biogram) are located at each work station.
- They are to be used for disposal of small items of contaminated waste, eg. used swabs, capillary tubes, wet slides, pipettes, inoculated reagent strips and glass culture tubes. When disposing of pipettes, ensure they are placed tip first into the biogram to prevent splashes and aerosol production.

- They are not to be used for Gram stains, non contaminated paper or matches.

5.2.3 Biohazard Bin

- A biohazard bin is located in the centre of each laboratory.

- These bins are to be used for the disposal of contaminated waste, eg. used culture plates and contaminated paper towel.

- They are not to be used for sharps or any non contaminated paper wastes.

- Do NOT use these bins for paper towel discarded after handwashing, nor for blotting paper discarded after blotting slides.

5.2.4 Billy Cans

- Two stainless steel tins are located at the front of each laboratory.

- Container 1: used for both contaminated and non contaminated recyclable glass or plastic tubes. Before placing items in the container please ensure that they are capped and that sticky labels are removed.

- Container 2: used for fixed and stained slides. This container is not to be used for disposal of “wet slides” - which should be disposed of into biogram buckets.

5.2.5 Paper Bin

To be used for non contaminated paper waste only, eg. Paper towel from handwashing (but not bench wiping) and blotting paper from blotting Gram stains.

5.2.6 Broken Glass

- When any glassware is broken, notify the instructor immediately for assistance with disposal.
• Non contaminated broken glass can be disposed of in the glass bin which is located in preparation room 2.

• Contaminated broken glassware should be placed into a stainless steel billy and autoclaved prior to disposal in the glass bin.
6. PC2 Practices and GMO’s

The Microbiology laboratories are certified as PC2 (Physical containment level 2) under the auspices of the Office of the Gene Technology Regulator (OGTR) for the purposes of performing work with genetically modified organisms (GMO’s).

A condition of this certification is that:

ALL WORK performed in the laboratory should be performed according to the PC2 facility laboratory procedures (see below) irrespective of whether the organisms being used in a given instance are or are not GMO’s.

The following section of the manual is extracted from the OGTR publication, “Guidelines for Certification and Physical Containment Facilities PC2 Laboratory Version 3.1 – issued July 2007)
Guidelines for Certification
of a
Physical Containment Level 2 Laboratory

Version 3.1– Effective 1 July 2007

The guidelines (Part A) contain the requirements for certification of a Physical Containment Level 2 (PC2) Laboratory issued pursuant to section 90 of the Gene Technology Act 2000 (the Act).

Once a facility is certified, the certification instrument imposes conditions on the facility pursuant to section 86 of the Act. The conditions of certification (Part B), detail the usual conditions that will apply to a PC2 Laboratory. Individual certification conditions may differ from these in some respect but generally an applicant can expect that their conditions will closely follow those published here. Once issued, the conditions may be varied by the Gene Technology Regulator as necessary and appropriate.

A list of the Australian/New Zealand Standards that are referenced throughout this document is also attached.

A separate document - Explanatory Information on Guidelines for Certification of Physical Containment Facilities - contains details about the process of certification. This document can be downloaded from the OGTR website <www.ogtr.gov.au>.

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Part A

Requirements for Certification

Physical Containment Level 2 Laboratory
Version 3.1 – Effective 1 July 2007

CONTAINMENT REQUIREMENTS THAT MUST BE MET IN ORDER FOR A PHYSICAL CONTAINMENT LEVEL 2 (PC2) LABORATORY TO BE CERTIFIED BY THE GENE TECHNOLOGY REGULATOR (THE REGULATOR).

Section 90 of the Gene Technology Act 2000

These are the requirements for the certification of a PC2 Laboratory issued under section 90 of the Gene Technology Act 2000 (the Act) and, as applicable, corresponding State legislation. These requirements apply to applications for certification of PC2 Laboratories received on or after the day on which these guidelines take effect.

To be granted certification, a facility must meet each of the requirements for certification of a PC2 Laboratory, unless the facility receives a written exemption from meeting a particular requirement from the Regulator or a delegate of the Regulator.

Definitions and acronyms

Unless defined otherwise in these requirements, words and phrases used in the requirements have the same meaning as in the Act and the Gene Technology Regulations 2001.

Words in the singular include the plural and words in the plural include the singular.

Where any word or phrase is given a defined meaning, any other part of speech or other grammatical form in respect of that word has a corresponding meaning.

Where a word in the text is bolded, it indicates that the word has been defined (see below).

aerosol Particulate matter, solid or liquid, small enough to remain suspended in air.
dealing or deal with  In relation to a GMO, means the following:
(a) conduct experiments with the GMO;
(b) make, develop, produce or manufacture the GMO;
(c) breed the GMO;
(d) propagate the GMO;
(e) use the GMO in the course of manufacture of a thing that is not the GMO;
(f) grow, raise or culture the GMO;
(g) import the GMO;
(h) transport the GMO;
(i) dispose of the GMO;
and includes the possession, supply or use of the GMO for the purposes of, or in the course of, a dealing mentioned in any of the paragraphs (a) to (i).

decontamination  A physical or chemical process which removes, kills or renders non-viable the GMOs being dealt with in the facility, but does not necessarily result in sterility.

environment  Includes:
(a) ecosystems and their constituent parts;
(b) natural and physical resources; and
(c) the qualities and characteristics of locations, places and areas.

facility  The whole of the space that is to be certified by the Regulator to a specific level of containment.

GMO  Genetically Modified Organism.


PC2  Physical Containment Level 2.

the Regulator  The Gene Technology Regulator.

Facility and fittings requirements
1. The facility to be certified must be a fully enclosable space bounded by walls, doors, windows, floors and ceilings.

NOTE: The walls, doors, windows, floors and ceilings form the physical containment barrier of the facility where dealings with GMOs will be conducted. This barrier protects all spaces outside the facility, including internal spaces of buildings in which a certified facility is located, and the environment.
2. The following surfaces in the facility must be smooth, impermeable to water, cleanable, and resistant to damage by the cleaning agents and/or disinfectants that will be used in the facility:
   (a) walls, floors, and benches;
   (b) furniture, including seating; and
   (c) any other surfaces, where contamination is likely to occur or where decontamination is required.

3. Open spaces between and under benches, cabinets and equipment in the facility must be accessible for decontamination.

   NOTE: The requirement for access to open spaces is to allow for easier decontamination of spills and to reduce any persistence of GMOs on the floor.

4. The facility must contain either a wash basin fitted with taps of the hands-free operation type or some other means of decontaminating hands.

   NOTE: Decontamination of hands is considered an important means of preventing unintentional release of GMOs and of protecting the health of facility personnel. If wash basins are to be used, the provision of hand-operated taps is not acceptable, as they are a ready source of contamination.

   Alternatives to wash basins, such as dispensers filled with decontaminant solutions, are considered suitable.

5. Eyewash equipment (either plumbed eyewash equipment or single-use packs of sterile eye irrigation fluids) must be provided within the facility.

   NOTE: AS/NZS 2982.1:1997 provides information on eyewash equipment. The Regulator does not require the placement of more than one piece of eyewash equipment in the facility for the purposes of flushing GMOs out of the eyes.

6. If any proposed dealings in the facility with GMOs that require PC2 containment will produce aerosols containing GMOs, then the facility must contain a biological safety cabinet, or other equipment specifically approved in writing by the Regulator that is designed to contain aerosols.

   Where a Class I or Class II biological safety cabinet is installed, it must be installed in accordance with the requirements of AS/NZS 2647:2000.

7. Where any device or system that may cause contamination of a potable water supply with GMOs that require PC2 containment will be connected directly or indirectly to any part of a water service, a risk assessment of the GMOs that will be dealt with in the facility must be undertaken to determine whether backflow
prevention on the water supplied to the facility is necessary. The backflow prevention risk assessment must be provided with the application for certification.

If backflow prevention is necessary, then backflow prevention measures must be implemented in accordance with the requirements of Section 4 of AS/NZS 3500.1:2003.

NOTE: More information on the risk assessment can be found in the OGTR’s operational Policy on Backflow Prevention in Certified Facilities on the OGTR website <www.ogtr.gov.au>.

Section 4 of AS/NZS 3500.1:2003 specifies the requirements and methods for the prevention of contamination of potable water within the water service and the water main, and provides for the selection and installation of backflow prevention devices.

**Capacity to comply with certification conditions**

8. The applicant must be able to demonstrate a capacity to comply with the conditions of certification that will generally be applied to a certified PC2 Laboratory. These conditions are found in Part B of this document.
Part B

Conditions of Certification

Physical Containment Level 2 Laboratory
Version 3.1 – Effective 1 July 2007

Conditions are imposed on facilities by the Regulator at the time of certification pursuant to section 86 of the Gene Technology Act 2000 (the Act) and, as applicable, corresponding State legislation. The condition clauses in this section are the ones that can be expected, in most cases, to be included in the certification instrument as the conditions of certification for a Physical Containment Level 2 (PC2) Laboratory.

Definitions and acronyms

Unless defined otherwise in these conditions, words and phrases used in the conditions have the same meaning as in the Act and the Gene Technology Regulations 2001.

Words in the singular include the plural and words in the plural include the singular.

Where any word or phrase is given a defined meaning, any other part of speech or other grammatical form in respect of that word has a corresponding meaning.

Where a word in the text is bolded, it indicates that the word has been defined (see below).

- aerosol: Particulate matter, solid or liquid, small enough to remain suspended in air.
- autoclave: Pressure steam steriliser.
dealing or deal with  In relation to a **GMO**, means the following:
   (a) conduct experiments with the **GMO**;
   (b) make, develop, produce or manufacture the **GMO**;
   (c) breed the **GMO**;
   (d) propagate the **GMO**;
   (e) use the **GMO** in the course of manufacture of a thing that is not the **GMO**;
   (f) grow, raise or culture the **GMO**;
   (g) import the **GMO**;
   (h) transport the **GMO**;
   (i) dispose of the **GMO**;
and includes the possession, supply or use of the **GMO** for the purposes of, or in the course of, a **dealing** mentioned in any of the paragraphs (a) to (i).

decontamination  A physical or chemical process which removes, kills or renders non-viable the **GMOs** being **dealt** with in the **facility**, but does not necessarily result in sterility.

environment  Includes:
   (a) ecosystems and their constituent parts;
   (b) natural and physical resources; and
   (c) the qualities and characteristics of locations, places and areas.

facility  The whole of the space that is to be certified by the **Regulator** to a specific level of containment.

GM  Genetically Modified.

GMO  Genetically Modified Organism.

NLRD  Notifiable Low Risk Dealing.


PC2  Physical Containment Level 2.

primary container  The container directly surrounding the **GMO**.

sealed  Able to contain and prevent the escape/release of all **GMOs** or **GM** reproductive material, including under standard transport conditions.

secondary container  The container immediately surrounding the **primary container**.

the Regulator  The Gene Technology Regulator.
Able to maintain integrity under all reasonably expected conditions of transport such as pressures, forces, impacts, temperatures and moisture.

Work not permitted in this facility type

1. The following work must not be conducted in this facility:
   (a) dealings with any GMO that under the conditions of a licence requires containment in any physical containment level higher than PC2;
   (b) the housing/keeping/rearing of any animals, arthropods, or aquatic organisms for longer than the minimum time required to complete laboratory procedures on them;
   (c) the growing of any plants (except those in tissue culture, or contained in a plant growth cabinet or other containment device approved in writing by the Regulator);
   (d) dealings with GMO cultures greater than 25 litres; or
   (e) any other work notified in writing by the Regulator.

Facility and fittings conditions

2. The certification holder must ensure that the physical attributes of the facility and fittings are maintained so that the relevant ‘Facility and fittings requirements’ continue to be met, in particular:

2.1. The facility must be maintained so that it is a fully enclosable space bounded by walls, doors, windows, floors and ceilings.

2.2. Prior to any significant structural changes that will affect the containment of GMOs in the facility, the applicant must either:

   2.2.1. request a suspension of the certification, in writing, from the Regulator; or

   2.2.2. request a variation to the conditions of certification in writing, from the Regulator, to allow dealings to continue in a part of the facility unaffected by the structural changes.

   NOTE: For example, it may be possible to temporarily partition the facility to provide containment for GMOs at one end while the other end is being modified.

2.3. Before a suspension of the certification can be lifted, the facility must be inspected by a person qualified to assess the facility’s compliance with the conditions listed under ‘Facility and fittings conditions’ to ensure that the facility meets the conditions of certification. Dealings with GMOs
must not recommence in a facility which has its certification suspended until the Regulator has lifted the suspension by notice in writing.

2.4. **Dealings** must not be conducted in a part of the facility that has been excluded from the facility by variation, until the Regulator approves a further variation to allow the resumption of dealings in that part of the facility.

2.5. The following surfaces in the facility must be maintained so they continue to be smooth, impermeable to water, cleanable, and resistant to damage by the cleaning agents and/or disinfectants that will be used in the facility:
   (a) walls, floors, and benches;
   (b) furniture, including seating; and
   (c) any other surfaces, where contamination is likely to occur or where decontamination is required.

2.6. The facility must be operated so that open spaces between and under benches, cabinets and equipment in the facility can be accessed for decontamination when required.

2.7. The facility must continue to contain either a wash basin fitted with taps of the hands-free operation type or some other means of decontaminating hands.

   NOTE: Alternatives to wash basins, such as dispensers filled with decontaminant solutions, are considered suitable.

2.8. Eyewash equipment (either plumbed eyewash equipment or single-use packs of sterile eye irrigation fluids) must be maintained within the facility.

2.9. Where dealings in the facility with GMOs that require PC2 containment produce aerosols containing GMOs, then the facility must continue to contain a biological safety cabinet, or other equipment specifically approved in writing by the Regulator that is designed to contain aerosols.

   NOTE: Procedures with GMOs such as centrifuging and vortexing that use sealed tubes need not be carried out in a biological safety cabinet, provided that the tubes are opened in a biological safety cabinet.

2.10. Where any Class I or Class II biological safety cabinet is installed and used for procedures with GMOs, it must be used and decontaminated in accordance with the requirements of AS/NZS 2647:2000.
2.11. Where any Class I or Class II biological safety cabinet is installed and used for procedures with GMOs, it must be inspected and tested in accordance with the requirements of AS/NZS 2647:2000. This testing is required at least every 12 months, and additionally after relocation of a cabinet, after mechanical or electrical maintenance and after high efficiency particulate air (HEPA) filters are replaced. The inspection and testing of cabinets must be carried out by a qualified person.

The cabinets must be tested for containment efficiency and a certificate, summarising the test results and the date of the next test, must be affixed to the cabinet.

Where testing has shown that the performance requirements for inward air velocity or HEPA filter integrity (Class I), or air barrier containment or exhaust HEPA filter integrity (Class II) are not met and the defect has not been corrected, the cabinet must be clearly marked to show that it is unsafe and must not be used for procedures that produce aerosols containing GMOs.

2.12. The effectiveness of any heat-based equipment used to decontaminate GMOs must be validated monthly and the results of each month’s testing kept for the previous 12 months and made available to the Regulator if requested.

If an autoclave is used to decontaminate GMOs, the effectiveness of the autoclave must be validated by the use of:
(a) thermocouples or resistance thermometers, to ensure that the required temperature has been achieved; or
(b) chemical indicators which use a combination of moisture, heat and time and which progressively change colour with the time exposed at the specified temperature; or
(c) biological indicators such as spore strips; or
(d) enzyme indicators.

2.13. Any heat-based equipment used to decontaminate GMOs must be calibrated annually by a qualified person and the results of each year’s calibration must be kept for the previous 5 years and made available to the Regulator if requested. When an autoclave is used for decontamination, this must include calibration of the thermocouple and safety valves.

2.14. If any decontamination equipment is found to be defective and the defect has not been corrected, the equipment must be clearly marked to show that it is defective and must not be used for decontaminating GMOs, waste or equipment associated with dealings with GMOs until the defect has been corrected.
2.15. Any backflow prevention measures in place either at the time of certification or installed at a later time must be maintained until a change in the measures is indicated by a review of the risk assessment.

NOTE: More information on the risk assessment can be found in the OGTR’s operational Policy on Backflow Prevention in Certified Facilities on the OGTR website <www.ogtr.gov.au>.

2.16. Where no backflow prevention device was installed at the time of certification of the facility, the need for installation of a backflow prevention device must be reviewed when:

2.16.1. any device or system that may cause contamination of a potable water supply is connected directly or indirectly to any part of the water service to the facility where no such connections were made prior to the certification of the facility; or

2.16.2. previous connections were made prior to certification and were assessed as not requiring backflow prevention measures, but a new GMO is to be dealt with in the facility that presents different risks from the GMOs assessed at the time of certification.

2.17. If installation of backflow prevention becomes necessary, then backflow prevention measures must be implemented in accordance with the requirements of Section 4 of AS/NZS 3500.1:2003.

NOTE: Section 4 of AS/NZS 3500.1:2003 specifies the requirements and methods for the prevention of contamination of potable water within the water service and the water main, and provides for the selection and installation of backflow prevention devices.

2.18. Any new or reviewed backflow prevention risk assessments must be kept and made available to the Regulator if requested.

2.19. If the facility is fitted with any testable water supply backflow prevention devices (in accordance with AS/NZS 3500.1:2003), these devices must pass a test every 12 months. These tests must be conducted in accordance with AS 2845.3:1993 by a licensed plumber accredited to test backflow prevention devices. Any failures must be rectified and the device re-tested until compliance is achieved. Documentation of the last five years’ test results must be kept and made available to the Regulator if requested.
General conditions

3. If the certification holder is not the owner of the facility, fittings and/or containment equipment and does not have the authority to maintain the facility, fittings and/or containment equipment, the certification holder must notify the Regulator in writing if the owner of the facility, fittings and/or containment equipment is incapable of carrying out, or refuses to carry out, or otherwise does not carry out, any maintenance required in order for the certification holder to continue to comply with the conditions of certification.

4. The facility must be inspected at least once every 12 months by a person qualified to assess the facility’s compliance with the conditions listed under the ‘Facility and fittings conditions’. An inspection report which records the extent of compliance with those conditions must be made. A copy of the last five years’ inspection reports must be kept and made available to the Regulator if requested.

NOTE: A checklist which may be used for annual inspections of PC2 Laboratories is available on the OGTR web site <www.ogtr.gov.au> – but its use is not mandatory. Annual inspection reports should not be sent to the Regulator unless requested.

5. Each access door to the facility must be labelled with the following adhesive signs:
   (a) a PC2 sign, as supplied by the OGTR; and
   (b) a biohazard symbol.

The signs must be placed on or next to each access door to the facility so that persons entering the facility are able to clearly see they are entering a certified PC2 facility.

NOTE: Signs do not need to be displayed on or next to the outside of dedicated “emergency only” exits. Signs may be stuck onto removable fixtures, such as backing boards or plastic frames, which must be secured to the door or wall and must not be transferred to any other location.

6. A supply of disinfectants effective against the GMOs being dealt with in the facility must be available in the facility for decontamination purposes. All containers of disinfectants, including any solutions for decontaminating hands, must be labelled with the contents and, where necessary, the expiry date. Solutions must not be used after the expiry date.

7. A strategy must be in place to control pests in the facility.
Obligations of the certification holder in respect of users of the facility

8. While any dealings with GMOs are being conducted in the facility, the certification holder must ensure that access to the facility is restricted to authorised persons.

9. For purposes of condition 8, an authorised person is a person who:
   (a) intends to undertake dealings, and has been trained in accordance with the Behavioural Requirements listed at Part C of this document;
   (b) has signed, dated and provided to the certification holder a record of the training referred to in paragraph 9(a) above; and
   (c) has not been excluded from the facility by the certification holder on the direction of the Regulator;

   or

   (d) is an individual, or class of person, who does not intend to undertake dealings and has the permission of the certification holder, the facility manager or other representative of the certification holder, to enter the facility.

10. If the Regulator requests the certification holder to provide a signed and dated record of the training provided to a particular authorised person, or class of person, the signed and dated record of that training must be available to the Regulator within a time period stipulated by the Regulator.

11. If the Regulator directs the certification holder to exclude a person, or class of person, from entry to the facility on the grounds that the person, or class of person:
   (a) has behaved, or is behaving, in a manner which has caused, or which may cause, GMOs to escape from the facility; or
   (b) has behaved, or is behaving, in a manner which has exposed, or exposes, other persons in the facility to a GMO in circumstances where the exposure causes, or is capable of causing, a threat to the health and safety of those other persons;

   the certification holder must exclude that person, or class of person, from the facility unless and until otherwise directed by the Regulator.

12. If the Regulator directs the certification holder to admit a person, or class of person, to the facility subject to conditions, the certification holder must only admit the person, or class of person, subject to those conditions.

13. For the purposes of condition 12, before admitting a person, or class of person, subject to conditions, the certification holder must notify the person(s) of any conditions that apply to them.
14. If the Regulator invites the certification holder to make a submission on whether or not a person, or class of person, should:
   (a) be excluded from entry to the facility; or
   (b) be admitted to the facility subject to conditions;
the certification holder may make such a submission within a time period stipulated by the Regulator.

15. If the certification holder is not the owner of the facility and does not have the authority to admit and exclude persons from the premises, the certification holder must not allow dealings in the facility until such authority is obtained in writing from the owner of the facility. If the certification holder does not have the capacity to prevent dealings from occurring, the certification holder must notify the Regulator of this in writing as soon as reasonably possible.

16. The Regulator or a person authorised by the Regulator must, at all reasonable times, be allowed to enter the facility for the purposes of auditing or monitoring the conditions applying to the facility and any dealings being conducted in it.
Part C

Behavioural Requirements

Physical Containment Level 2 Laboratory
Version 3.1 – Effective 1 July 2007

Doors & windows
1. Except during the entry and exit of personnel, supplies, and/or equipment, doors of the facility must be closed while procedures with GMOs are being conducted. Dedicated “emergency only” exits must not be used to enter the facility.

2. Windows must remain closed while procedures with GMOs are being conducted.

Non-GMOs in the facility
3. Persons undertaking work on non-GMOs in the facility while a GMO dealing is occurring are subject to these requirements unless:
   (a) procedures are implemented to ensure that the non-GMO work is not cross-contaminated with GMO dealings;
   (b) the above procedures are documented; and
   (c) the outermost container must be free of contamination with GMOs prior to being transported out of the facility.

   NOTE: Means of preventing cross-contamination of non-GMO work by GMO dealings could include physical separation of the work, or separation by working at different times and ensuring any contaminated surfaces are decontaminated prior to commencing work with non-GMOs.

Containment equipment
4. Any procedures in the facility with GMOs requiring containment in a PC2 facility that produce aerosols containing GMOs must be performed in the biological safety cabinet or other aerosol containment equipment approved in writing by the Regulator.

Personal protective clothing
5. The following personal protective clothing must be worn by personnel undertaking dealings in the facility:
   (a) protective clothing to afford protection to the front part of the body; and

   NOTE: A rear-fastening gown is preferable.
(b) gloves, when dealing with GMOs which fit into the classification of Risk Group 2 or higher, as described in AS/NZS 2243.3:2002 Section 3.2.

6. Personal protective clothing must be removed before leaving the facility. This does not apply if moving directly to another containment facility, certified to at least PC2 by the Regulator, that is directly connected to the facility or is connected by a corridor that is not a public thoroughfare and in which there is negligible risk of cross-contamination should other personnel be encountered or contacted in the corridor.

NOTE: The Regulator recommends the provision and use of coat hooks or similar for the storage of personal protective clothing.

Decontamination

7. All decontamination procedures must be carried out by trained personnel.

8. GMOs must be rendered non-viable prior to disposal.

9. Wastes containing GMOs must be decontaminated prior to disposal.

10. Work benches, surfaces and equipment where procedures involving GMOs have taken place must be decontaminated when the dealings are completed.

11. Equipment must be decontaminated before being removed from the facility.

12. Protective clothing contaminated with or suspected to be contaminated with GMOs must be taken off as soon as practicable and decontaminated prior to reuse. Protective clothing that has not been contaminated with GMOs may be washed using normal laundry methods. Gloves must be disposed of.

13. Decontamination can be effected by autoclaving or other heat treatment, incineration, chemical treatment, or by any other method approved in writing by the Regulator.

NOTE: Autoclaving is the most reliable means of decontamination, however this method is not applicable in all situations.

14. Any heat-based treatment must be performed using a combination of temperature and time that has been validated as effective in rendering the GMOs non-viable.

NOTE: If an autoclave is used for decontamination:

(a) loads must be packed and loaded to allow for the penetration of steam into the material being decontaminated in accordance with AS/NZS 2243.3:2002;
(b) the coldest part of the load must be exposed to a minimum temperature of 121°C and 103 kPa for at least 15 minutes or at 134°C and 203 kPa for at least 3 minutes in accordance with AS/NZS 2243.3:2002; and

(c) measures must be taken to ensure that loads that have been processed can be differentiated from loads that have not (e.g. by use of autoclave tape).

15. Incineration must be performed in a high temperature, high efficiency incinerator that has been approved by the relevant government authority in the jurisdiction where the incinerator is located.

16. Any chemical disinfectant treatment must be effective in rendering the GMO non-viable.

   NOTE: AS/NZS 2243.3:2002 is a recommended source of information when selecting and using chemical disinfectant agents.

17. Decontamination can take place in the facility, or at another location, providing the GMOs, equipment, waste or clothing are transported to the decontamination site in accordance with any transport guidelines and other relevant guidelines issued by the Regulator.

18. Persons who have been performing procedures with GMOs in the facility must decontaminate their hands before leaving the facility.

   NOTE: This may include the use of soap and water, if appropriate. If wash basins are to be used, the use of hand operated taps is not acceptable, as they are a ready source of contamination.

Labelling

19. All cultures of GMOs must be clearly labelled. Any unlabelled viable material must be treated as a GMO and handled in accordance with these conditions.

   NOTE: Labelling enables the separation of GM work from non-GM work and enhances the control of GMOs within the facility.

Removal and storage of GMOs

20. GMOs which require containment in a PC2 facility must not be removed from the facility unless:

(a) they are to be transported to another containment facility certified by the Regulator to at least PC2;  
(b) they are to be transported to another location for storage;  
(c) they are to be transported to another location to be decontaminated prior to disposal;  
(d) written permission, such as a licence, has been given by the Regulator for transport to another destination within Australia; or
(e) subject to obtaining any required permits, they are to be transported to the Australian border for export.

21. All GMOs being transported out of the facility, including transport to storage outside the facility, must be transported in accordance with any transport guidelines and other relevant guidelines issued by the Regulator.

22. All cultures of GMOs being stored inside the facility must be sealed during storage to prevent dissemination of the GMOs.

   NOTE: The type of container necessary to prevent the GMOs from escaping will vary depending on the type of organisms being stored.

23. GMOs or organisms containing GMOs may be stored outside the facility in a storage unit (freezer, fridge, controlled temperature room or other container). A biohazard symbol must be posted on the storage unit. The storage unit must be locked when not in use, unless access is restricted to the room or area where the storage unit is located. Access to the storage unit must be restricted or controlled to prevent unintentional release of GMOs into the environment.

24. GMOs or organisms containing GMOs being stored outside the facility must be double-contained. The primary container must be sealed to prevent the escape or release of the GMOs and must be labelled. The primary container must be stored in an unbreakable secondary container. In the case of a small storage unit such as a fridge, freezer or liquid nitrogen container, the secondary container may be the storage unit.

25. In the case of NLRDs, the notifying organisation must authorise the storage of GMOs outside of the facility.

Spills

26. Documented procedures must be in place to decontaminate any spills involving GMOs inside or outside the facility. The procedures must be made available to the Regulator if requested.

27. If a spill of GMOs occurs inside the facility, the spills procedures must be implemented to decontaminate the spill as soon as reasonably possible.

28. If a spill of GMOs occurs outside the facility, the spills procedures must be implemented to ensure that all spilt material is recovered and any contaminated surfaces are decontaminated.

29. Any real or suspected unintentional release of GMOs outside the facility, including spills, must be reported to the Regulator as soon as reasonably possible.
Attachment 1

Standards referenced in this document

‘AS’ followed by a number or other identification is a reference to the Australian Standard so numbered or identified.

‘AS/NZS’ followed by a number or other identification is a reference to the Australian/New Zealand Standard so numbered or identified.

AS/NZS 2243.3:2002 Safety in laboratories
Part 3: Microbiological aspects and containment facilities

AS/NZS 2647:2000 Biological safety cabinets
Installation and use

AS 2845.3:1993 Water supply - Backflow prevention devices
Part 3: Field testing and maintenance

AS/NZS 2982.1:1997 Laboratory design and construction
Part 1: General requirements

AS/NZS 3500.1:2003 Plumbing and drainage
Part 1: Water services
6.7 Unintentional Release of Genetically Modified Organisms

If GMO’s are un-intentionally released from the facility, the Microbiology Safety Officer should be notified immediately. The safety officer will take whatever immediate action is possible and appropriate and then notify both the IBC and the OGTR.
7. PERSONAL PROTECTIVE EQUIPMENT & PROCEDURES

Ideally, this section (or an abridged version) should be incorporated (along with Section 4) into all students laboratory practical manuals.

7.1 Gowns

- Students and staff are provided with rear opening wrap around gowns for use when in the laboratory.
- Front buttoning laboratory coats are not suitable.
- Gowns are to be laundered every fortnight during semester.
- Any gowns that are soiled in excess of “normal use” are to be removed from circulation until laundering can be arranged.
- Staff are to ensure that students wear gowns at all times in the laboratory, do not wear them out of the laboratory, and replace them “inside out” onto the hooks at the completion of laboratory sessions.

7.2 Safety Glasses and Eye Protection

- All students and staff are required to have “safety glasses” with them for all practical sessions, and are to use them when procedures are undertaken that involve significant risk of splashing with infectious or corrosive liquids.
- Safety glasses must be worn when opening the autoclave.
- Safety glasses must be worn when accessing the liquid nitrogen storage system.
- An eyewash station is located in the “ante room”.
- The eyewash fluid should be replaced with “fresh” sterile distilled water every month. The date of “renewal” shall be recorded on the bottle.

7.3 Gloves

- For routine work in the microbiology laboratory, gloves are not considered essential.
- Gloves should be worn under the following circumstances;
• When mopping up a spill.
• When performing procedures where there is a high risk of contaminating hands.

• If open cuts or skin conditions are present that increase the risk of infection from accidental contamination.

• When instructed by the demonstrator.

• Ensure that adequate supplies of gloves are present in all laboratories. If you use the last gloves from a box, please notify the demonstrator so that stocks can be replenished.
• Gloves MUST be worn when working in the biological safety cabinet.

7.4 Handwashing

• The standard handwashing procedure is to use running water and “Hibiclens”.
• Hands must always be washed before leaving the laboratory.
• Hands must be washed following any type of spill (culture or reagent).
• The “Hibiclens” dispensers at all handwashing sinks within the laboratory must always be sufficiently full.

7.5 High Risk Individuals/Antenatal Considerations

• Persons who are immunocompromised or otherwise particularly susceptible to infection need to be identified so that additional precautions for microbiological safety can be taken when necessary.

• Within this context, pregnant women are known to be at high risk of infection by *Listeria monocytogenes*. Therefore, for their own safety, any female student or staff member who is, or thinks that they may be pregnant, should discuss the matter with the academic in charge of the unit prior to commencing work with *Listeria monocytogenes*.

• Any student that has a medical condition that they feel might be compromised by exposure to reagents or cultures in the laboratory is encouraged to discuss the matter with the demonstrator or Microbiology Safety Officer.
8. ORGANISMS

8.1 Risk Category

- All organisms used in the laboratories are to be regarded as potential human pathogens and treated accordingly.

- Only organisms categorised as Risk Group 1 or 2 (see appendix 2) are allowed in the laboratory, and organisms of Risk Group 2 that require additional special precautions may only be used when authorised by the Microbiology Safety Officer.

- It should be noted that *Mycobacterium tuberculosis* or specimens likely to contain *Mycobacterium tuberculosis* are not allowed in the laboratory.

- It should be noted that cultures of *Neisseria meningitidis* should not be knowingly cultured in the laboratory.

8.2 Storage and Identification

- All cultures should be suitably identified such that the degree of risk can be ascertained in the event of an accident.

- For “unknown” cultures used for teaching purposes, at least two people (usually the practical demonstrator and the Laboratory Technician) shall be aware of the true identity.

8.3 Culture Collections

- Details of all organisms maintained in Microbiology Laboratory Culture Collections should be entered onto the central databases located in the shared files folder on the laboratory computer. These lists will be considered the “definitive” versions and should be “dated” when any amendments or additions are made.

- Some of the organisms within the culture collection are GENETICALLY MODIFIED ORGANISMS and are clearly identified as such on the database by highlighting in yellow, with details of the specific genetic modification contained in the spreadsheet.

- All hard copies must be dated.

- The academics responsible for individual collections shall also keep an up-to-date electronic version.
8.4 Transport

- When viable organisms (e.g., cultures, specimens, stock organisms) are transported to or from the laboratory, the “primary” container should be carried within an outer “secondary” container. The secondary container should be sealable and non-breakable.

8.5 Genetically Modified Organisms (GMO’s)

For additional information please see 6.6.

1) All cultures or stored GMO’s that come under the NLRD category must be clearly labelled with a minimum of a) a yellow sticker b) the initials of the worker responsible for the organisms and c) some identifier, preferably a number linked back to the culture collection.

2) All areas where GMO’s are or might be stored should also be clearly labelled with adequate signs AND a yellow sticker.

8.6 Unintentional Release of Genetically Modified Organisms

If GMO’s are un-intentionally released from the facility, the Microbiology Safety Officer should be notified immediately. The safety officer will take whatever immediate action is possible and appropriate and then notify both the IBC and the OGTR.
9. LABORATORY EQUIPMENT

9.1 Autoclave

- Each autoclave should have a logbook documenting the date, time and contents of the cycle.

- The standard autoclave cycle used in this laboratory is 121°C for 15 minutes; should a faster cycle be required then 134°C for 4 minutes can be used. Such “non standard” cycles should be indicated in the logbook.

- Microbiological waste should be autoclaved for 40 minutes at 121°C.

- A heat sensitive indicator (autoclave tape) should be used in every load.

- A Thermolog (® 3M) strip should be run weekly and a spore strip run every two weeks. Both the thermolog and spore strip should be autoclaved inside a loosely capped Shott bottle. Any failures MUST be reported to the Microbiology Safety Officer as soon as possible.

- Details of problems, repairs or maintenance should be recorded in the logbook.

- Noxious fumes may be generated during the autoclaving of waste materials. To minimize the risk of being exposed to these fumes, always turn on the extraction fan before opening the autoclave door and allow the fumes to dissipate before removing the contents.

- Always wear safety glasses when opening the autoclave door and always check that the chamber has de-pressurised before opening.

- Always use heat safety gloves when removing items from the autoclave.

- Undergraduate students are only permitted to use the autoclaves when under the DIRECT supervision of a staff member.

- Post graduate students must be given instruction on the use and care of the autoclaves before using them, and as a matter of courtesy check with the laboratory staff before running cycles within normal working hours.
9.2 Biological Safety Cabinet

- The biohazard cabinet is a Class 1 cabinet designed to provide an inward flow of air to protect the operator. The following guidelines should be observed when using the cabinet.

- Close doors to adjoining laboratories to minimise the disruption of the airflow.

- Turn on the motor and allow it to run for 30 seconds before commencing work.

- Wipe down the interior work surfaces of the cabinet with Biogram when work is completed.

- Do not switch on the UV lamp unless precautions are taken to avoid accidental exposure to UV radiation. Either install the shield or leave the room if the UV lamp is required for decontamination.

- The cabinet is checked annually by LAFtechnologies.

- A Microbiology Safety Officer should be notified of any major spills that occur in the biohazard cabinet.

- The UV lamp should be run as a decontaminating measure once per week, and following any spill in the cabinet. This should be recorded in the log book located with the cabinet.

- Gloves MUST be worn when working in the cabinet.

- More information on the use of the cabinet can be obtained from Aus Std 2647.2000 attached as an appendix to this manual.

9.3 Gas Supply

- The laboratory is serviced with a reticulated gas supply and each room has an isolation switch that can be used to cut off the gas to all outlets within that room.

- In the event of a spill of flammable liquid, fire or backburning of an individual bunsen burner, de-activate the isolation switch immediately.

- A master isolation switch - which cuts off the gas supply to the entire laboratory, is located in the ante-room and should be de-activated at the end of each day.
• The gas supply is to remain off until a staff member declares it safe to switch it back on.
10. CLEANING AND WASTE DISPOSAL

10.1 Biogram

- The general disinfectant used in the laboratory is BIOGRAM. This is supplied as a 15% phenol equivalent. It should be prepared as follows.

  a) 1 in 50 dilution for bench top discard containers.
  b) 1 in 150 for bench wiping squirt bottles.
  c) 1 in 20 for gross spills.

10.2 Diversol

- For cleaning of spills involving human blood or body fluids, “Diversol” should be used at a concentration of 5000 ppm of available chlorine. This should be made up immediately prior to use as it has a limited shelf life. Sachets of “Diversol” are stored on the chemicals shelf in the preparation room.

10.3 Squirt Bottles

- Ensure that there are sufficient “biogram squirt bottles” in each laboratory for every laboratory session. These should be clearly labelled.
- These are prepared as a 1 in 150 of commercial biogram.

10.4 Biogram Buckets

- The “biogram buckets” should be changed weekly - or more often if grossly soiled.
- These are prepared as a 1 in 50 of commercial biogram.

- The buckets and contents must be autoclaved prior to removing or disposing of the contents (see 8.7).

- Allow the buckets to cool before emptying the contents (through a sieve) down the drain. Solid materials collected in the sieve can then be bagged and discarded. Note, that since this residual material usually contains glass and other sharp objects, it should be disposed of in the bin for “broken glass”.

10.5 Billy Cans
• The “billy cans” should be emptied regularly, and the contents must be autoclaved before removing, disposing, washing or recycling of the contents (see 8.7).

10.6 Biohazard Bags

• The biohazard bags and contents should be autoclaved before disposal. The bags should not be sealed prior to autoclaving, rather they should be left open to allow penetration of the steam (see 8.7)

10.7 Autoclaving Waste Materials

• Noxious fumes may be generated during the autoclaving of waste materials. To minimise the risk of being exposed to these fumes, always turn on the extraction fan before opening the autoclave door and allow the fumes to dissipate before removing the contents.

• Microbiological waste should be autoclaved for 40 mins at 121°C.
11. CLEAN-UP PROCEDURE FOR BIOHAZARD SPILLS

• Spills involving infectious materials are complex events and no set of instructions can cover all possibilities nor replace the need to exercise common sense and apply sound microbiological judgement in their management.

• All staff members or other personnel involved in supervising practicals, and all postgraduate students involved in unsupervised work must be familiar with the following guidelines, which are to be used in the management of spills.

11.1 General considerations for biohazard spills

• When dealing with a spill of biohazardous liquid, it is important to be aware that the spill may become dispersed into three spill fractions:
  
  • The bulk of the liquid remains as a puddle.
  • A portion separates as splashes and rivulets.
  • A portion is released as airborne particles (aerosols).

• The small airborne particles pose the greatest risk as they can remain airborne and be dispersed to other areas.

• General purpose laboratory disinfectant (Biogram) can be used to clean all spills except those involving human blood or body fluid; in these cases a disinfectant with 5000 ppm of chlorine (Diversol) should be used (see 8.2).

11.2 Assessing a Biohazard Spill

• The designation of biohazard spills into “minor” and “major” is of practical importance as this will dictate the nature and extent of the clean up procedures subsequently instigated. However, establishing and using formal criteria to so designate a given spill is problematic because of the large number of variable circumstances that may relate to the spill.

• The supervising staff member present will be responsible for assessing the risk posed by an individual biohazard spill and instigating suitable clean up procedures.

• In general, the following aspects will need to be considered when assessing and categorising a spill.
• The biological nature of the spill. For example; how pathogenic are the organisms contained or likely to be contained in the spill, and is infection likely to be acquired by the respiratory route?

3. The physical nature of the spill. For example; has the spill resulted from a container knocked over on a bench with low potential for the generation of aerosols, or has a container been dropped, or smashed in some way with a greater potential for the generation of aerosols?

4. The volume of liquid spilt.

• For example, 10 ml broth culture of *E. coli* that has been knocked over on the bench would be considered a “minor biohazard spill” whereas a 500 ml broth containing *S. pneumoniae* that has been dropped onto the floor would be considered a “major biohazard spill”.

11.3 Minor biohazard spills

Generally considered as a spill of minimally hazardous material with low potential for generation of aerosols.

• If hands have been contaminated, first wash hands with Hibiclens.

• Remove and replace any contaminated protective clothing.

• Put on gloves.

• Lay down absorbent material wetted with disinfectant over the spill and allow to sit for 10 minutes.

• Discontinue working in the immediate area.

• After 10 minutes, mop up spill and place contaminated materials into autoclave bag.

• Wipe over general area again with paper towel dampened with disinfectant.

• Remove gloves and wash hands.

• Consider the events that lead to the spill and determine if any additional preventative strategies are appropriate. Discuss these with a Microbiology Safety Officer.
11.4 Major biohazard spills

Generally considered to be spills of major risk with larger volume and considerable production of splashes and aerosols.

- Hold breath, warn others of spill and all leave the room immediately.
- Close doors and place a “DO NOT ENTER” sign on the door.
- Remove any contaminated clothing and wash any contaminated body surfaces.
- Notify Microbiology Safety Officer (preferably) or other senior staff member. Assemble a “Spill Clean Up Team” – consisting of three people, two to clean up, and one to supervise and direct the clean up.
- The clean up team should all don “gowns, gloves, face masks and safety glasses” before entering the spill area.
- Do not re-enter the room until a minimum of 30 minutes has elapsed.
- Determine the extent of the spill: pour disinfectant around the edge of the spill and allow it to run “into the spill”. Do not pour disinfectant directly onto the spill as this may create additional aerosols.
- Lay paper towels wetted with disinfectant onto the spill and leave for 30 minutes.
- Use disinfectant to wipe over areas around the spill that are likely to have been contaminated with splashes and aerosols.
- Fill out an incident report form (see appendix 3).
12. REPORTING OF INCIDENTS

12.1 General Considerations

- Official reporting of incidents is to be done through the relevant Employee Safety representative. This is Mrs Laura Maddock in the School of Human Life Sciences (Ext 5463, Room C208).

- Copies of any documentation relating to an incident or safety hazard must be sent to both Microbiology Safety Officers and a copy should also be retained within the laboratory.

12.2 Accident or Incident Report

- All accidents and major spills should be documented on an “incident report form” (see appendix 3 for example).

- These forms are available from the Employee Safety representative (see above), and should be completed with the assistance of that officer.

- Copies of the completed form should be sent to both Microbiology Safety Officers, and a copy retained in the microbiology laboratory.

12.3 Notification of a Safety Hazard

- Staff are encouraged to communicate “near misses” or safety hazards that they have identified to the Microbiology Safety Officer or Employee safety representative of the respective School in order to identify “risky practices” and prevent future incidents.

- If appropriate, a “Notification of a Safety Hazard” form (see appendix 3 for example) should be completed.

- Copies of the completed form should be sent to both Microbiology Safety Officers, and a copy retained in the microbiology laboratory.

12.4 Unintentional Release of Genetically Modified Organisms

If GMO’s are un-intentionally released from the facility, the Microbiology Safety Officer should be notified immediately. The safety officer will take whatever immediate action is possible and appropriate and then notify both the IBC and the OGTR.
13. APPENDICES

**Appendix 1.** Organisms classified as Risk Group 1 and 2.

**Appendix 2.** Australian Standard 2647.2000 (Biological Safety Cabinets)

**Appendix 3.** Induction Form.