



## PRELIMINARY WORKSHOP AGENDA

# BIOCONTAINMENT FACILITIES – DESIGN & CONSTRUCTION WORKSHOP

26 -29 March 2012

**Stamford Grand Adelaide**

Moseley Square, Glenelg

### Monday 26 March 2012

- 8.30 to 9.00 COFFEE / REGISTRATIONS
- 9.00 to 9.30 **Welcome and Introductions**
- 9.30 to 10.30 **Principles of Biocontainment** (Tony Della-Porta)  
*This presentation will cover primary and secondary barriers, aerosol containment, PC1 (BSL-1) to PC4 (BSL-4) containment levels and practices, and international standards and guidelines. This presentation will also cover the causes of laboratory infections and how engineering controls assist in the prevention of these infections.*
- 10.30 to 10.50 MORNING TEA
- 10.50 to 11.50 **Standards and Regulations: Australian Regulations, Standards and Health Security Act, and what an Assessor looks for** (Neil Walls & Tony Della-Porta)  
*This talk will cover AS/NZS243.3, AS/NZS2982, OGTR and DAFF Biosecurity (formerly AQIS) Regulations and what assessors often find wrong in facilities. It will also cover the Department of health and ageing requirements under the Health Security Act for Tier 1 and Tier 2 Security-Sensitive Biological Agents.*
- 11.50 to 12.30 **Design Principles – site factors, facility location, a first pass at budgeting and construction principles** (Neil Walls)  
*An introduction to the first decisions that are often made about these types of facilities and how to avoid common pitfalls. This session will include some suggestions of construction techniques and technologies that are appropriate for containment laboratories.*
- 12.30 to 1.30 LUNCH

1.30 to 2.30 **Case Study 1: Identify what can go wrong (GROUP EXERCISE)** (Tony Della-Porta)

*This will be a group exercise to identify faults in a number of biocontainment projects which will be illustrated and discuss of the findings will illustrate some of the common problems seen in biocontainment facilities*

2.30 to 3.30 **Air Handling Systems** (Neil Walls)

*The design and requirements of air handling systems for PC2, PC3 and PC4 laboratories and animal facilities. This presentation will include details on air flow rates, conditioning, directional air flow, maintaining pressure zones, duct system design and HEPA filtration requirements.*

3.30 to 3.50 AFTERNOON TEA

3.50 to 4.15 **Waste Treatment Principles and Issues** (Tony Della-Porta)

*This will cover the treatment waste and decontamination. It will cover autoclaves, disinfectants, sterilisation, and decontamination.*

4.15 to 4.55 **Liquid Waste Treatment** (Neil Walls)

*There are a number of alternative methods of dealing with potentially contaminated liquid waste. These vary greatly in cost, effectiveness against different risk organisms and volume capacity. This session will examine current technologies that are available. It will also introduce some new methods that are being considered in this growing industry*

4.55 to 5.10 **Solid and Carcass Waste Treatment** (Neil Walls)

*Some waste includes a mixture of solids and liquids, such as animal waste material and infected carcasses. A number of alternative methods of dealing with this difficult waste material will be examined, with some recommendations concerning their particular advantages and limitations as well as spatial considerations for plant and infrastructure.*

5.10 to 5.20 WRAP UP OF DAY 1

## **Tuesday 27 March 2012**

8.30 to 9.00 COFFEE/INTRODUCTION TO DAY 2

9.00 to 10.30 **Air Tightness, Air Pressures, Leakage and Testing** (Neil Walls)

*The standards and authorities require that a PC3 or PC4 facility must be able to support gaseous decontamination. This requires the facility to be sealed to a very high standard. This session looks at how this is achieved and measured, including penetrations.*

10.30 to 11.30 **Plaster Board and Sealant Use** (Neil Walls)

*Plaster board is sometimes considered for PC3 facilities. Appropriate fixing, sealing and finishing are essential to achieve air tightness and to prevent collapsing under negative pressure*

11.30 to 11.50 MORNING TEA

- 11.50 to 12.50 **Sandwich Panel Construction** (*local*) (Neil Walls)  
*Sandwich panels of the type used for cold rooms are often utilised and they require special joining and penetration details for successful containment*
- 12.50 to 1.50 LUNCH
- 1.50 to 2.30 **Specialised Sandwich Panels** (*Dagard/Clestra*) (Tony Della-Porta)  
*This technology utilises the combination of specialised clean room and biocontainment panels, a design and construction service, and supply of integrated doors, windows and penetrations*
- 2.30 to 3.00 AFTERNOON TEA
- 3.00 to 3.30 **Composite Panels** (*Arcoplast*) and **Glass Walls** (Tony Della-Porta)  
*Briefly new technologies for creating biocontainment facilities will be covered.*
- 3.30 to 4.00 **Concrete and Concrete Block** (Neil Walls)  
*Concrete block construction has commonly been used for PC3 facilities, especially in the USA. The use of reinforced concrete has been used in facilities such as AAHL and in the USA for large animal facilities*
- 4.00 to 4.30 **Stainless Steel Panel Systems** (*Opitz + Flierl*) (Tony Della-Porta)  
*These can be used for biocontainment facilities that require high level of containment, such as PC4 facilities, and for large animal biocontainment facilities*
- 4.30 to 5.00 **Floors** (Neil Walls)  
*Looks at alternatives for floors, including vinyl and poured floors.*
- 5.00 WRAP UP OF DAY 2
- 7.00 **DELEGATES DINNER (DETAILS TO BE ANNOUNCED)**  
*Bio2ic will host a delegate's dinner, including meal and wine, venue to be announced*

## Wednesday 28 March 2012

- 8.30 to 9.00 COFFEE/INTRODUCTION TO DAY 3
- 9.00 to 10.00 **Risk Assessment and Workflow Analysis** (Tony Della-Porta)  
*This will cover the processes of risk assessment of work that will be carried out in a facility yet to be designed and how we move to a preliminary design and identify the work flows.*
- 10.00 to 10.40 **Power, Fire Services, Laboratory Gases, Communications and Security** (Neil Walls)  
*These services often receive less attention in the design of higher containment facilities. Although their functions are often similar to requirements of normal laboratory facilities, there are important installation differences as well as additional requirements for security, monitoring, control and indication. Future additions and changes are much easier if some thought is given to future change during the initial design phases of the facility.*

- 10.40 to 11.00 MORNING TEA
- 11.00 to 11.45 **Laboratory Furniture & Equipment, Including Biological Safety Cabinets** (Tony Della-Porta)  
*This will cover the requirements for laboratory furniture and the design and installation of biological safety cabinets.*
- 11.45 to 12.30 **Animal, Invertebrate and Plant Facilities** (Neil Walls)  
*This will detail the requirements for both small and large animals, for plants and for invertebrates. The use of ventilated animal isolation cage systems will be discussed, with an assessment of the two main design strategies currently being distributed in Australia. The relationship between these systems and the main air handling and waste treatment requirements will also be discussed.*
- 12.30 to 1.30 LUNCH
- 1.30 to 3.00 **Case Study 2: Examination of microbiological incidents in contained laboratory facilities and the identification of the causes.** (GROUP EXERCISE)
- 3.00 to 3.30 AFTERNOON TEA
- 3.30 to 4.00 **Building Monitoring and Control Systems** (Neil Walls)  
*Neil will talk about the principles of control systems for biocontainment facilities and where the technology is heading.*
- 4.00 to 4.30 **Signage**  
*Many biocontainment laboratories have wrong and inappropriate safety signage. This session will cover the safety signage under AS1319 and AS/NZS2243.3*
- 4.30 to 4.40 WRAP UP OF DAY 3

## Thursday 29 March 2012

- 8.30 to 9.00 COFFEE/INTRODUCTION TO DAY 4
- 9.00 to 10.00 **Gaseous Decontamination Systems** (Tony Della-Porta)  
*This will cover the principles of gaseous decontamination of PC3 and PC4 facilities, including the use of formaldehyde, vaporised hydrogen peroxide, chlorine dioxide and mists of paracetic acid. It will cover the present state of play with formaldehyde and how it will be eventually replaced by hydrogen peroxide, and the need to plan for this change.*
- 10.00 to 10.30 MORNING TEA
- 10.30 to 12.30 **Design Exercise**  
*This is an exercise where teams will design a biocontainment facility using a brief supplied to them and the information in the course*
- 12.30 to 1.30 LUNCH
- 1.30 to 3.30 **Design Exercise Continued**
- 3.30 to 4.00 AFTERNOON TEA
- 4.00 to 4.50 **Finalise Design Exercise**
- 4.50 to 5.00 FINAL WRAP UP OF COURSE