**Biocontainment Workshop - Plenary Group**
**22-24 June 2010**

| **Tuesday 22 June 2010** | |
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| 9:00am – 9:30am | **Welcome and Introductions** |
| 9:30am – 10:30am | **Principles of Biocontainment** (Tony Della-Porta)<br>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. |
| 10:30am – 10:50am | MORNING TEA |
| 10:50am – 11:50am | **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 AQIS Regulations and what assessors often find wrong in facilities.* |
| 11.50am – 12.50pm | **Air Tightness, Air Pressures, Leakage and Testing** (Neil Walls)<br>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. |
| 12:50pm – 1:50pm | LUNCH |
| 1.50-2.15 | **Waste treatment principles and issues** (Tony Della-Porta) *This will cover the treatment waste and decontamination. It will cover autoclaves, disinfectants, sterilisation, and decontamination.* |
| 2.15 – 2.55 | **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* |
| 2.55-3.20 | **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.* |
| 3.20-3.40 | **AFTERNOON TEA** |
| 3.40-4.10 | **Air handling systems** (Neil Walls) *The design and requirements of air handling systems for PC2, PC3 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.* |
| 4:10-5:00 | ***Case Study: 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 facility* |
| 5:00-5:05 | WRAP UP DAY 1 |

# Wednesday 23 June 2010

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| 9-10 | **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* |
| 10-11 | **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* |
| 11-11.20 | **MORNING TEA** |
| 11.20-12 | **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* |
| 12-12.30 | **Composite panels** *(Arcoplast)* **and glass walls** (Tony Della-Porta) *Briefly new technologies for creating biocontainment facilities will be covered.* |
| 12.30-1.30 | LUNCH |
| 1.30-2.30 | **Penetrations** (Neil Walls) *Correct penetration of electrical, hydraulic, air handling and other services is critical to the saleability of biocontainment facilities. We will describe and demonstrate penetrations that can be utilised in biocontainment facilities* |
| 2.30-3.00 | **Concrete and concrete block** (Neil Walls) *Concrete black 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* |
| 3.00-3.40 | **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.* |
| 3.40-4.00 | **AFTERNOON TEA** |
| 4.00-4.45 | **Laboratory furniture, including Biological Safety Cabinets** (Tony Della-Porta) *This will cover the requirements for laboratory furniture and the design and installation of biological safety cabinets.* |
| 4.45-4.50 | WRAP UP OF DAY 2 |

| Thursday 24 June 2010 | |
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| 9.00-9.45 | **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.* |
| 9.45-10.15 | **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.* |
| 10.15-10.35 | MORNING TEA |
| **Gaseous Decontamination Workshop** | |
| 10.35-11.20 | **Gaseous Decontamination** (Tony Della-Porta) *This introduction will cover the types of gaseous decontamination processes likely to be used in a biocontainment facility* |
| 11.20-12.05 | **Formaldehyde** (Tony Della-Porta) *Formaldehyde or paraformaldehyde gaseous decontamination is the standard procedure for most biocontainment laboratories, its use will be detailed and safety issues will be discussed* |
| 12.05-12.45 | LUNCH |
| 12.45-1.45 | **Hydrogen Peroxide** (Neil Walls) *With formaldehyde likely to be banned for use in Australia within the next 10 years vaporized hydrogen peroxide is becoming the method of choice. This presentation will describe the principles of this method and will discuss the use of Steris and Bioquell equipment.* |
| 1.45-2.30 | **Safety Considerations including Respiratory Protection** (Tony Della-Porta) *This will detail the appropriate safety equipment required for gaseous decontamination. This includes respiratory protection, protective clothing and gloves and test equipment* |
| 2.30-3.00 | **Chlorine Dioxide** (Neil Walls) *Chlorine Dioxide is a potential alternate to vaporized hydrogen peroxide to replace formaldehyde. Its use will be described including some details of ClorDiSys equipment and process* |
| 3.00-3.15 | AFTERNOON TEA |
| 3.15-4.15 | **"Anthrax" Case Study** (Tony Della-Porta) *This is a case study of decontamination of the Hart Building (US Senate) following the anthrax letters of October 2001* |
| 4.15-4.45 | **Design Issues for Decontamination Specialist Applications** (Neil Walls) *It is important that biocontainment facilities are correctly designed for gaseous decontamination. The design requirements so that the appropriate system or systems can be supported will be explained in this session.* |
| 4.45-5.15 | **WRAP UP OF DAY 3** |