Effective Biosafety and Biosecurity Training for Maintenance and Security Personnel

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Renovation, Commissioning, and Start Up – ABSL-3 Facility

http://www.safar.pitt.edu/sites/default/files/pictures/rangosresearch.jpg
Priorities and Comfort Zones

• Facilities
  – Very comfortable with engineering components
    • How does their equipment impact lab operations?
    • How should they prioritize issues?

• Security/Police
  – First on the scene
  – Manage incident
  – Communications
    • Should they enter?
    • Who do they call?
    • What do they do?
Making the Connection

• What do we need to know?
• Why so much detail?
• Where do we fit in?

Start somewhere familiar

For our building everyone knew about the animal facility...
Start somewhere familiar

New Priority: The ABSL-3 comes first!

Making connections
Making connections

WHO Laboratory Biosafety Manual

Testing and commissioning

Safety features depend on fans, dampers, BSCs, cage racks, control system and sequences operating normally
Making connections

• Fail building supply air handlers
  – Sequence: building exhaust fans then ABSL-3 fans

Making connections

• Building management systems and controls
  – How often should we measure trending points?
  – How long do we need to keep the data?
Making connections

**Dual exhaust fan failure**

- Lab goes into shutdown mode
- Facility HVAC strobes will be red for all rooms, DPM alarms, and BSC alarms alert research personnel
- Researchers call CHP-L Engineering Command center and request engineer on call to investigate alarm state of 9th floor ABSL 3.
- FM should immediately alert EH&S and research manager so that this group can start risk assessment

EH&S should pull room DPM trends so we can ensure that facility shutdown followed tested sequence and no reversal occurred. EH&S and research manager follow up will include: Were there personnel in the facility at time of failure? Animals? What were personnel doing at time of failure? Were there any spills or other incidents at the time of failure?

Use commissioning/testing emergency scenarios to illustrate information needed for risk assessment

EH&S and researchers need to know when systems aren’t fully operational
Is your lab a mysterious place?

• We are used to talking about biosafety manuals, training, and SOPs, and we know the level of detail we use
  – Show them the documents
  – Walk them through the training

Sealed, filtered cages

HEPA in/out
HEPA Filters: Relative Particle Sizes

- **Virus**: .01 Micron = .00001 mm
- **Spore**: 10 Microns = .010 mm
- **Human Hair**: .0889 mm
- **Dust**: .0254 mm
- **Dander**: .00254 mm
- **Bacteria**: 1 Micron

Is your lab a mysterious place?
Training = Teambuilding

• Are you a name on a sheet of paper?
• Have you met the overnight shift?
  – Even if you only meet some of the personnel they will tell their co-workers

Success = a 1:00 AM phone call

Don’t forget to follow up with the boss
Emergency procedures

• Why call the command center for all emergencies?
  – Isn’t it an extra step?

1 NUMBER = LESS CONFUSION IN AN EMERGENCY

Emergency procedures

• Are you sure we shouldn’t go in?
  – Keyed to respond – life and safety 1st

SHOW THEM YOU HAVE A PLAN
Making connections

• Prove our commitment to safety of our personnel and our community
  – We didn’t release this pathogen from our lab

https://www.cdc.gov/westnile/statsmaps/finalmapsdata/index.html

Connections made!

• Everything is a team effort
  – Animal health and welfare
  – Cutting edge research
  – Safety and security of personnel and community
Children’s Facilities and Security Team

Children’s Research Team:
  Laurie Silva, PhD
  Terry Dermody, PhD

Design and Construction Team

Pitt EH&S Team:
  Rebecca Lingenfelter, ABSO
  Jay Frerotte, Director
  Katy Board, RBL BSO