

WAO 2010 Daejeon Korea

Break out sessions:
FIRE PROTECTION

Attendees

- Paul W. Sampson (BNL) Chair
- Michael Aiken (JLAB)
- Kyungjean Min (PEFP)
- Dae Il Kim (PEFP)
- Jin-Seok Hong (PEFP)
- Paul Miller (SLAC)
- Yun Sang-Pil (PEFP)
- Fujinawa Tadashi (RIKEN)

Subjects: Legacy items

- Methods for re-assessment of existing systems.
- Upgrades to suppression and detection systems.
- Authorization for change: local, lab wide etc.

The group discussed various methods by which their respective fire systems are assessed, maintained and updated. At SLAC and BNL issues of older, inadequate or overkill (CO2) systems were mentioned.

Riken was mentioned as a good model wherein accelerator operations cedes authority to the local municipality. They intern use suggestions from Accelerator operations to resolve and implement solutions.

In the case of SLAC and RHIC (BNL), the fire suppression systems are implemented by lab fore departments. Difficulties in getting changes to the system were expressed. The desire for the removal of CO2 suppression systems was universal.

Replacements for such systems were discussed and included Halon, foam and sprinkler systems.

For the US facilities, adherence to NFPA codes were discussed. Similar codes exit for Japanese facilities, while standards for accelerator facilities in Korea seemed to be still in the process of being defined.

At PEFP, the test facility is housed in a building that had detection sprinklers.

Emergency Ingress and Egress

The group discussed the various ways that their institution implements emergency ingress and egress. Focus on connections to individual personnel protective or access controls systems showed similarities in most cases but also suggested improvements could be made in all.

At SLAC, the doors are designed to swing out (into the lesser occupied areas) after a short delay. The doors are magnetic and have a pseudo mechanical bar.

Similarly at RHIC, some doors are strictly mechanical while others are magnetic. Exit from these gates can be done instantly, though areas adjacent will need to be re-swept as a result. At both facilities, areas need not be re-swept unless actually entered (i.e. by fire rescue or other emergency personnel)

RIKEN has keys at the doors, which the fire department use to enter during an emergency, while exit is made by crashing out of mechanical doors.

Adherence to fire code was again brought up.

Securing Hazards

The group discussed methods by which hazards may be secured for facility access.

All facilities had policy of securing power to accelerator devices prior to emergency access.

At BNL and SLAC, high hazards such as the Main Magnet supplies are interlocked by the doors via the Access controls system, while other systems were secured by operators.

RIKEN has a system of internal cameras that allow for an operator to check visually for fire in an alarming area and react accordingly. In the event that an alarm is real, they secure the facility (shut down) and call the local fire authority.

A general discussion of fire/access/radiation controls systems followed in which each facilities methods for combining or segregating these systems was explored.

The general consensus was that, while separation of the systems was nice, some connection between all of the systems was necessary.

General and Closeout

The Group described methods, frequency and follow-up for Fire Drills and methods for improvement.

Detection methods and detector types were recommended. Restrictions on types and vendors for this equipment was also discussed.

Reaction to sprinkler or other suppression discharge was discussed. The recovery from the fire at the PEFP test facility was described. Smoke damage was the major contributor to the damage to equipment while water from sprinkler systems caused less.

Finally, training requirements and certification methods were described by participants. In some cases a yearly certificate was issued for fire protection adherence (RIKEN) while at others the certification was part of a training program as well as an integral part of the access controls systems yearly checkout

Conclusion

I found that this diverse group was able to touch upon many of the aspects in which an accelerator facility is attached to fire protection at every phase.

Each facility had both common and unique techniques for achieving necessary goal of safety, environmental protection, equipment protection and continued operation.

As a result of information attained at this session, I plan on assessing both the methods and the equipment used at CAD for RHIC fire protection and implementing a cite wide improvement plan.