Take 5 for Safety

Avoiding Major Events at C-AD and Pictures of the Week

Collider-Accelerator Department
2-5-2013

BROOKHAVEN NATIONAL LABORATORY

a passion for discovery

Office of Science

Questions to Ask to Prevent Major Events

- Do we understand the difference between personal safety and prevention of catastrophic events?
- Do we have the right technical and management systems in place and do they get implemented as intended?
- Do we support consistent and rigorous use of safety, technical and management systems?
- Do we act in ways that promote identification of exposure and reduction of risk?
- Does the performance management system support activities critical to prevention of catastrophic events?
- Are roles and responsibilities assigned in a way that assures clarity, alignment, coordination, and communication?
- Are metrics in place to detect changes in exposure and assure focus on key processes and procedures?

What C-AD Does to Prevent Events

- We analyze low-probability high-consequence events at C-AD:
  - Radiation shielding failure
  - Uncontrolled radioactive material release
  - Accelerator access control system failures
  - Helium release scenarios at RHIC
  - Flammable gas release scenarios at STAR or PHENIX
- We assume one event involving radiation or radioactive material is one too many (e.g., tritium release, uncontrolled beam loss, 801 contamination event)
- We provides resources for protection (e.g., new VODH system, new AGS ACS, tritium monitoring systems)
- We use oversight (e.g., supervisor and manager work observations, LPs and LEs, QA checks on procedure implementation)
- We test or check functionality of safety barriers (e.g., ACS testing)
- We promote integration of safety early into design (e.g., Design Review Questionnaires, RSC, ESRC)
- We use procedures and follow requirements (e.g., ASE procedures, LOTO procedures, Conduct of Operations, check-off lists, authorizations)

Pictures of the Week – Major Events in Last Few Years

Pictures of the Week

- Lessons learned from recent major events:
  - Deep Water Horizon – be sure that barriers, detectors, and emergency equipment will work when called on
  - Fukushima Daiichi – anticipate loss of local infrastructure and support capabilities during major disruptions
  - Costa Concordia – expect that sooner or later somebody will do the totally unexpected
  - I-35W Bridge – hidden design faults can haunt you at any time
  - San Bruno – beware the dangers of an aging infrastructure
  - DC Metro – cutting maintenance and oversight will not save money