

AGENDA

Day 3: Thursday, February 4, 2016

9:00 a.m. **Announcements and Agenda Review**
Tom Nicholson, U.S. NRC

9:10 a.m. **Session 4: Ground-Breaking, Innovative Technologies and New Opportunities**
Co-Chairs: Laurie Judd, Longenecker & Associates and Richard Reid, EPRI

Presentation 1: Challenges and Opportunities for the Next Generation of Remote Systems and Robotics in the Decommissioning of DOE's Nuclear Facilities
Rod Rimando, DOE

Presentation 2: Snake Arm Robots for Nuclear Applications
Adam Mallion, OC Robotics

10:15 a.m. **Break**

Presentation 3: Robotics and Sensing for Nuclear Infrastructure Inspection
David Mascarenas, Los Alamos Engineering Institute

Presentation 4: RISER: 3D Contamination Mapping with a Nuclear-Capable Drone
Alan Shippen, CREATEC

Presentation 5: Developing a Suite of Remote Handling Tools for Fusion Experiments
Rob Buckingham, UKAEA-RACE

12:00 p.m. **Panel 4 Discussion:**
Moderators: *Laurie Judd, Longenecker and Associates and Richard Reid, EPRI*

Panelists: *Rod Rimando, DOE
Alan Shippen, CREATEC
Adam Mallion, OC Robotics
Rob Buckingham, UKAEA-RACE
David Mascarenas, Los Alamos Engineering Institute
Michael Kurzeja, Exelon Corp.*

Panel questions:

1. What can the nuclear industry do better or differently to accelerate the adoption of innovation and new technologies?

2. What are the ground-breaking, innovative technologies and new developments that are needed now to enhance the functionality and application of robotics at nuclear facilities?
3. Who has and/or who should have, the responsibility for taking these technologies from “the lab to the field” (i.e. ‘bridging the valley of death’)?
4. Are programs such as the National Robotics Initiative in the U.S., Horizon 2020 in Europe and AISP in the UK linked closely enough with industry and end users to ensure that the technology investments being made are targeted and prioritized on the ‘right’ things? If not, what should we do differently to make sure that future programs are better aligned with end user needs?

12:30 p.m. Lunch

1:30 p.m. Session 5: *Robotic Technology Testing, Operator Training and Certification and Regulatory Standards Development*
Co-Chairs: Phil Mattson, DHS and Tim Brooke, ASTM International

Presentation 1: Standards Development for Robotics and their Operators
Gordon Gillerman, NIST

Presentation 2: SMART Firefighting using Robotics
Casey Grant, Fire Protection Research Foundation

2:30 p.m. Break

2:45 p.m. Presentation 3: Guidance on Robot Operator Certification
Tim Brooke, ASTM International

3:15 p.m. Panel 5 Discussion:
Moderators: *Phil Mattson, DHS and Tim Brooke, ASTM International*
Rapporteurs: *Jennifer Marshall, NIST*
Jennifer Rinderknecht, DHS Science & Technology Support
Panelists: *Gordon Gillerman, NIST*
Casey Grant, FPRF
William Hamel, IEEE RAS
Chris Eason, ANS
Dr. Tetsuya Kimura, Nagaoka University of Technology

Panel questions:

1. Where and how are robots tested?
2. Where and how are robot operators trained?
3. How can these testing and training programs be incorporated into a certification program recognized by industry and government?

4. How do industry-developed standards (e.g., ASTM International, American Society of Mechanical Engineers) gain regulatory acceptance?
5. What are the procedural and regulatory challenges that need to be addressed?

4:15 p.m. Next Steps (examples from Germany, NIST, DOE, CNSC, UKAEA, etc.)

Adam Jacoff, NIST

5:00 p.m. Workshop Adjourns