Assessing Human Performance Solutions to Reduce Serious Injuries and Fatalities

Switching Safety & Reliability

Project Updates

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NATF/NERC Human Performance Conference
March 27, 2018
Assessing HP Approaches to reduce SIFs

- In early 2017, our funders told us:
  - EPRI needs to assess opportunities to advance HP to reduce SIFs
  - SIFs rates have been flat for this industry for 20 years

- Our funders asked us:
  - Are there HP and or Behavioral solutions to reduce SIFs?

- We Heard The Members and Acted!
  - Working to identify R&D opportunities that lead us to ascertain solutions—-this is the “EPRI space”
EPRI Switching Safety & Reliability

- Long-standing EPRI project
  - Supplemental

- Focus on Switching – Safety & Reliability aspects
  - Unique in industry
  - Brings Field and Control Center together
  - Exploring effects of new technologies on safety & reliability
Sources for “State of Practice/Knowledge”

**Literature Reviews**
- Books/Handbooks (e.g. DOE, Conklin, Reason)
- Journals, Publications, Papers, Articles – peer/lit and gray/lit
- Conference/Workshop Proceedings

**Interviews**
- HP Thought Leaders/Practitioners
- Electric
- Oil/Gas/Petroleum
- Aviation
- Railroads
- Chemical
- NTSB
- Academia – U of Colorado, Ohio State, Oregon State
- Fire Service/First Responders
Time Line

**Literature Review and Interviews:**
9/1/17 - 4/1/18

**“State of Practice and Knowledge” Report:**
3/1/18 - 7/1/18

**Conduct Research Workshop:**
October 23-25, 2018

**Report Out of Research Opportunities:**
November 1, 2018
Potential opportunities for R&D to improve HP effectiveness in reducing SIFs

- **Workforce Sustainability**
  - Focus on Risk and Reward and good decision making
  - Design for Safety - opportunity to be designers of the work

- **Change how data is collected**
  - Consider ANSI standard injury classification

- **Focus on what’s critical (irreversible) for the worker**
  - Define process that mitigates errors/improves SIF rate
  - Take criticality to level of “every time the RIGHT way”
  - Balanced approach for sustainability
    - Prevention/Detection/Correction

- **Use of Emergency Response/Military model for “field” decision making**
Potential opportunities for R&D to improve HP effectiveness in reducing SIFs

- **Precursor analysis**
  - Starts with good field engagement/collaboration/rapport building

- **More partnerships between utilities and the research community**

- **Study SIF data to find what are the differences between companies with Low SIFs and High SIFs**

- **Effect of conducting After Action Reviews on reducing SIFs**
Potential opportunities for R&D to improve HP effectiveness in reducing SIFs

- **Cultural Aspect of Safety**
  - How does an organization’s culture affect SIF rate

- **Involvement of support functions (HR, finance, maintenance, etc.) in incidents**

- **Effect of improved front-end communication on SIF rate**

- **Effect of changes in system on end user**
  - Increase/decrease SIFs
SS&R Key Deliverables 2017

- "Entering a Substation and Preparing to Switch" Videos
  - View in its entirety or as 8 short Safety & Training Videos
    - PPE to Pre-Job Briefs to Performing a Walk down to 3 Part Communication

- Field Guide for Switching Personnel

- Coupling Capacitor Potential Devices
  - Field testing results and recommended treatment during switching

- Near Miss and Event Definitions and Data Model
  - Consistency
  - Information sharing
  - Available to the Industry
SS&R Key Deliverables 2018

- New Device Placards Recommendations
- Augmented and Virtual Reality - testing and demonstrations for Switching Safety & Reliability
- Motor Operated Disconnects and Switches – Training
- Switching Safety & Reliability Reference Book
- Assessing effects of new technologies on safety & reliability
SS&R Key Deliverables – ongoing

- Monthly Webcasts
- Workshop & Task Force Meeting
- Coordination with other EPRI programs related to Safety, HP, and Switching
- Conference, Training & Task Force Meeting
Join us at the 22\textsuperscript{nd} Annual Power Switching Safety & Reliability Conference  
Newport Beach, CA. August 20 - 22, 2018

Partial List of Planned Sessions

- Pre-conference training
- Use of VR in switching training
- HP – What’s new?
- Augmented Reality – What’s working?
- Safety Challenges – Restoration
- Duke’s New Switch Order System and Process Harmonization
- Operation of the Correct Switch Demonstration Projects
Thank you!

- Cheeseburger at airport - $18
- 3 nights at the “Whitley” - $507
- Opportunity to exchange ideas with all of you - PRICELESS!!
Contact Information

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