Human Performance Improvement (HPI) and Contract Labor Force Engagement

2015 NERC HUMAN PERFORMANCE CONFERENCE
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Human Performance Improvement (HPI) and Contract Labor Force Engagement

- 3 Regions – 3 major projects
  - NSP – CAPX2020
  - PSCo – SB 07-100
  - SPS – Power for the Plains
Human Performance Improvement (HPI) and Contract Labor Force Engagement

- Several events involving contract labor force
- Leveraged successes for two groups within Transmission organization
- Developed 3-phase approach to roll-out
Return On Investment (ROI)
- Quarterly contractor meetings
  - Event learning/ lessons shared
  - Process improvement
  - Equipment usage
Dominion Virginia Power

Electric Transmission Field Operations
System Protection

Human Performance Improvement

Mike Carden
Technical Specialist
In 2010, Dominion Transmission capital spending began to increase dramatically.
Between 2009 and 2010, System Protection’s HP error event rate increased by 88 percent.

HP Error Event = Inadvertent removal of in-service primary equipment.

We Needed Some Human Performance Improvement!
How We Got Started...

Categories of Common Errors

- What were we doing wrong?

- Bumped Panel
- Accessed Wrong Panel/Relay/Port
- Loss Of Potential
- Missed Design Error
- Loaded / Jumpered Wrong Point
- Wiring Error Dominion
- Test Blades
- Control Wiring Contractor
Use of Work Zone Barriers

Terminal Point Barriers
Monthly Web Cast
System Protection
Work Methods and
Human Performance

A Great Catch, Near Misses, Unusual Situations to Share
Let Us Know When You Make or See Them
We Will Share the Information During the Next Webcast

RTS-2 Bus No. 1, Pri. No. 1 Current & Out

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AWARENESS
Dominion System Protection Technical Crews
Man Hours vs. Human Error Events

- 2010
- 2011
- 2012
- 2013
- 2014

- Man Hours
- Human Errors
What About the Contractors?
Use contract electricians for capital construction and existing control system rebuilds.

Dominion Substation Electricians are focused on operations and maintenance.
HP Improvement Using a Contract Labor Force

- In 2010, 28 contract electricians.
- In 2014, 92 contract electricians.
- In 2011, contract electrician errors produced a HP error event to our system every 32 working days.
Fall 2011, HP training for all contract electricians.

Displayed the error data....what we do wrong.

HP tools and physical “defense tools”.

DC circuitry training and overview of our relay circuitry.

HP “coach” training for all contractor supervisors.
Contract Electrician Wiring Errors
2010-2014

Fall 2011
Human Performance Training for Electricians

988 Days
Error Event
Free

2010 2011 2012 2013 2014
IT’S ALL ABOUT AWARENESS

- What are we doing?
- What mistakes do we make when we’re doing it?
- What defenses can we put in place?
Dominion's System Protection group has documented and tracked errors and events within a tracked reinforcement.
When Your HP Improvement Culture Takes Root

Awareness
Reliability
Error Events
Safety Incidents
Injuries

Everybody Wins!
Thank You!