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Engineering Sciences Center FY16/Q3 Director Assessment

Anomalous Encounters with Electrical Systems

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Assessment Purpose

- Explore past events in aggregate and try to recapture lost undocumented lessons learned.
- What is an Anomalous Electrical Encounter?
  - Electrical occurrences that don't rise to the level of trackable events or incidents
  - Everyday problems that are out of the ordinary and typically resolved and forgotten
- Assertion: Many electrical incidents are preceeded by anomalous encounters
  - Appropriate response to anomalous encounters prevents a future incident

Methodology

- Identified and performed interviews with technologist and staff members who work directly with electrical test configurations
  - A total of 15 interviews, (19 personnel) were conducted from 1500 organization's that work with electrical test equipment and configurations (1510, 1520, 1530, 1550)
- Utilized a questionnaire sheet during the interview to capture information and any lessons learned
  - Discussed previous anomalous electrical encounters and response:
    - What did they do?
    - Did they know the voltage source?
    - Were they cognizant of the boundary of 'live electrical work'?
    - Are there any specific procedures in place to address response to anomalous electrical situations?

Observations

- Awareness of lab staff of electrical safety is high
  - Voltage source (range 10V to 4160V).
  - Boundary of live electrical work
  - Existence of the Procedures
- Anomalous encounters are common events
  - No power when expected
  - Sensor misbehavior
- Responses to events are generally Ad-Hoc but appropriate
  - Ask a colleague with more experience for assistance/advice.
  - Verification that the electrical connections were correct.
  - Check individual components and replace them with serviceable units that did function properly.
  - Elevate to FMOC or contract vendors as needed
- Concern for contractor awareness and safety

Recommendation

- Promote consistency in response to anomalous events
  - Take your time, there is no hurry.
  - Get second set of eyes immediately
  - Ensure system is de-energized
  - Re-check electrical connections.
  - Incorporate visual voltage indicators
  - Elevate if not obvious
- Contractors Operations
  - Oversee contractor operations
  - Rigor in Contractor Safety Briefings
    - Stand-up meeting to review procedure before initiating work
    - Ensure contractor understands boundary of live electrical work