



**“NFPA 70 E – Standard for Electrical Safety in the Workplace –  
Imbedded Safety Strategies”**

---

**Department of Energy Electrical Safety  
Workshop**

**July, 17, 2007**

**Albuquerque, NM**

**C. Bryan Drennan**

**Sandia National Laboratories**

**[cbdrenn@sandia.gov](mailto:cbdrenn@sandia.gov)**

**505-844-6491**

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company,  
for the United States Department of Energy’s National Nuclear Security Administration  
under contract DE-AC04-94AL85000.





## NFPA 70E

---

**“...Electrical Safety Requirements for employee workplaces that are necessary for the practical safeguarding of employees in their pursuit of gainful employment...”**



# NFPA 70 E Protective Strategies

---

- **Electrically Safe Work Condition**
- **Training / Qualification**
- **Personal Protective Equipment**
- **Planning**



# Electrically Safe Work Condition

---

- **Article 120 – Establishing an Electrically Safe Work Condition**
  - Determine electrical sources
  - Disconnect under “no load” condition
  - Verify disconnecting device effective operation
  - Apply LOTO
  - Verify de-energization with appropriate test device
  - Ground when inductive or stored energy exists

**TURN IT OFF!**



# **Decision to Work On or Near Live Parts**

---

## **Article 130 – Working On or Near Live Parts**

- **Justification for Work**
  - ...Employer must demonstrate that deenergization introduces additional or increased hazards or is infeasible due to design or operational limitations...
- **Energized Work Permit**
  - 11 key sections



## Training / Qualification

---

- ...shall be trained and knowledgeable of the construction and operation of equipment or a specific work method and be trained to recognize and avoid the electrical hazards that might be present with respect to that equipment or work method...
  - Key emphasis on specific
  - Key emphasis on equipment or work method



# Personal Protective Equipment

---

- **Article 130.7 – Personal and Other Protective Equipment**
  - **Specific to the hazard (...shock, arc blast/flash...)**
- **Must meet specific standards associated with protective equipment**
- **Must be used in accordance with standards**



# Planning

---

- **Complete “scope of work”**
- **Establish electrical system characteristics**
- **Hazard / Risk Evaluation**
- **Involve worker and management**
- **Establish Controls**
- **Implement Controls**
- **Self-Assess effective planning – “...What can we do better...”**



## What's next?

---

- **2009 Edition of NFPA 70E is currently being developed**
- **Considerable effect of 70E on OSHA standards**
  - **New 29CFR 1910 Subpart S – Electrical, Effective August 13, 2007**
- **10CFR 851- Worker Safety and Health Program – U.S Department of Energy**
  - **Mandates implementation of NFPA 70E**



**Questions?**