

CHARTER
NRC – EPRI Collaborative Research Working Group on
High Energy Arcing Fault (HEAF)

Mission Statement

To advance the state of knowledge and improve understanding of risk from electrical arcing fault hazards in nuclear power plants (NPPs).

Goal Statements

- Characterize the primary factors that influence the occurrence and severity of arcing fault events (arc flash, arc blast, or HEAF).
- Develop a risk model for arcing fault events based on experimental data, operating experience, and engineering judgement.
- Analyze the plant impact of and quantify the change in risk from arcing fault events involving copper and aluminum.

Team Members

Ken Fleischer (Fleischer Consultants)
Dane Lovelace (Jensen Hughes)
Shannon Lovvern (TVA)
Tom Short (EPRI)
Marko Randelovic/Ashley Lindeman (EPRI)

JS Hyslop (NRC)
Nicholas Melly (NRC)
Kenn Miller (NRC)
Gabriel Taylor (NRC)

Project Managers

Kelli Voelsing (EPRI)
Mark Henry Salley (NRC)

Project Sponsor

Tina Taylor (EPRI)
Michael Cheok (NRC)

CHARTER
NRC – EPRI Collaborative Research Working Group on
High Energy Arcing Fault (HEAF)

Deliverables

1. Representative probabilistic risk assessment (PRA) frequencies and binning for electrical arc faults, including factors such as:
 - Arc flash, arc blast, or HEAF scenario definitions
 - Damage to external targets vs. confined to electrical component of origin
 - Component type and application
2. A technical model for the spectrum of arcing fault events based on experimental data, operating experience, and engineering judgement that:
 - includes the technical bases for representative damage models
 - accurately predicts the risk
 - is properly correlated with event frequencies and consequences
 - accounts for influential plant features
3. Representative pilot plant risk analysis. The pilot plant analysis should:
 - Represent the hazard across the fleet. The contribution of arcing fault events to plant risk is expected to vary, and may require plant engagement to understand which plants have aluminum in SSCs of interest (location, configuration, amount, etc.).
 - Seek industry stakeholder participation to evaluate the risk impact of the updated arcing fault model for aluminum and associated frequency.
4. Updated guidance to parse and more accurately characterize the risk of arcing fault events in fire PRAs. The updated methodologies and guidance should be published per the standard industry or NRC practices.
5. Periodic communications to keep stakeholders apprised of Working Group activities and progress.