



*Liberté  
Égalité  
Fraternité*

**IRSN**

INSTITUT DE RADIOPROTECTION  
ET DE SÛRETÉ NUCLÉAIRE



United States Nuclear Regulatory Commission

*Protecting People and the Environment*

# IRSN / NRC BILATERAL COOPERATION ON NUCLEAR SAFETY

IRSN: Jean-Christophe NIEL, Director General

NRC: Christopher T. HANSON, Chair

# OVERVIEW

- IRSN and NRC provide technical expertise and conduct research for science-based safety assessments to inform regulatory decisions
- NRC and IRSN cooperation began in 2002, shortly after IRSN was established
- In August 2022, IRSN and NRC renewed their framework cooperative arrangement



*IRSN and NRC leadership met in August*

# ONGOING COOPERATION

- NRC and IRSN collaborate on nearly 60 technical areas of research, including on:
  - Severe accidents (experiments and modeling)
  - Fuel safety (experiments and modeling)
  - Nuclear power plant long-term operation
  - Natural hazards and fire safety
- IRSN and NRC (and U.S. DOE) cooperate on emergency preparedness and environmental modeling (e.g., Ukrainian nuclear facilities or international exercises)



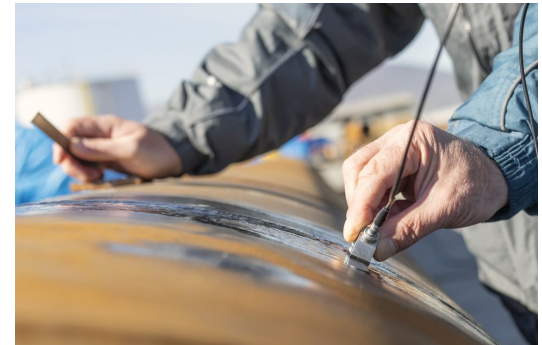
*A joint experiment on short circuits and fires*



# FUTURE OPPORTUNITIES

IRSN and NRC will continue nuclear safety research, to support oversight of aging fleets and of future reactors and reactor designs, including...

- To study material aging and life extension, e.g., to jointly develop and validate new tools for Non-Destructive Examination of metallic and concrete components
- To assess the safety of advanced technologies, such as artificial intelligence in nuclear systems



# FUTURE OPPORTUNITIES

- To assess the safety of passive systems used in SMRs (partnership on PASTIS project – Cadarache, France)
- To cooperate for maintaining and renewing safety research platforms in the United States and France
- To assess the safety of new fuels (ATF), involving research reactors in the United States (TREAT) and France (CABRI)
- To further develop simulation tools (computer codes) for safety assessment (severe accidents, fuel safety, etc.)