

Nuclear Plant Fire Protection and Hazards Analysis



Industry-Leading Experience and Resources

AREVA is the preeminent nuclear power fire protection analysis firm. We have expertise developing and managing all aspects of nuclear fire protection. In fact, our experience includes over 75% of the commercial nuclear power industry. Plus, our technical methodologies have set the standard. We leverage our extensive global resources to provide solutions to our clients for their specific nuclear plant operations.

Risk-Informed / Performance-Based Methodologies: More Insight

Our Fire, Safety and Risk Services team judiciously applies risk-informed / performance-based methods to characterize the real significance of inspection findings. Our approach:

- Develop realistic fire scenarios to determine the risk significance of fire protection inspection findings
- Verify fire scenarios postulated from inspection findings that would actually result in significant degradation of defense-in-depth features
- Ensure due credit given for all fire protection features such as prompt fire brigade response
- Utilization of fire modeling to support risk-informed, performance-based approaches

Significance Determination Process: More Safety Assurance

Significance Determination Process (SDP) requirements have increased the burden on utilities to determine the severity and safety consequences associated with numerous fire protection failures and deficiencies. Your plant's existing analyses may not identify all potential success paths and systems to achieve safe shutdown, which could affect the ability to characterize the risk significance of inspection findings. Our multi-disciplined staff of systems engineers, electrical / I&C engineers, and database programmers can enhance your safe shutdown analysis to implement the SDP effectively. You can rest assured that inspection findings are properly characterized.

Program Optimization: More Cost-Effective

Many fire protection programs may not be optimized to balance regulatory compliance with cost-effective implementation. Our professionals can help you develop a more cost-effective program for your plant. Our approach:

- Perform detailed NFPA code assessments to justify areas of noncompliance or develop workable solutions
- Prepare technical evaluations to document the acceptability of all non-rated / non-tested fire protection features on a plant area basis
- Align program documents with plant PRA / IPEEE results
- Implement efficient controls to maintain fire protection program documentation concurrent with the plant configuration
- Implement cost-effective surveillance reduction measures, such as statistical sampling of penetration seals, based on historical plant operating data

Services

- Significance Determination Process assessment
- Fire safe shutdown systems and circuit analysis
- Design basis documentation and reconciliation
- NFPA code compliance assessment and analysis
- Safe Shutdown Analysis System (DATATRAK) software
- Data Management (DATATRAK) software
- 50.59 process change management
- Pre-fire and post-fire plan development
- Fire hazards assessment and analysis

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- Fire protection surveillance reduction program implementation
- Plant modification package development and implementation
- Fire suppression and detection systems design and testing services
- Computerized combustible tracking and controls programs
- Fire barrier design, evaluation and testing services
- Fire protection program audit and self-assessment services
- Programmatic configuration controls implementation
- Smoke and heat effects analysis
- Fire PRA and modeling services
- Fire brigade training
- Fire events analysis
- Fire protection program fundamentals reviews

Features and Benefits

- Accurate characterizations of inspection findings ensure compliance
- Our multi-disciplined staff of systems engineers, electrical / I&C engineers, and database programmers can enhance your safe shutdown analysis to implement the SDP effectively
- A more cost-effective program for your plant
- Determine the adequacy of installed barrier configurations based on actual plant hazards and the performance of tested configurations

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